THE

JOURNAL OF GAS LIGHTING,

WATER SUPPLY, & SANITARY IMPROVEMENT.

VOL. VII. No. 157—10th YEAR.] LONDON, OCTOBER 26, 1858. [Subscription per Ann. { 15s. in Advance / 18s Credit.] Price 8d. Unstamped.

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Merthyr Tydfil, Oct. 20, 1858.

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NOTICE is hereby given, that the ORDINARY GENERAL MEETING of the Western Gaslight Company (Limited) will be held at the Company's Offices, No. 28, Argyll Street, Regent Street, London, on THURSDAY, the 4th day of November next, at One o'Clock precisely, for the purpose of declaring a Dividend for the Half Year ended the 30th of June last, and of transacting the ordinary business of the Meeting; also for the purpose of sanctioning the issuing from time to time by the Board of Directors of all or any of the 5154 unissued shares, as debenture shares, to bear a fixed guaranteed dividend at a rate not exceeding £5 per cent. per annum, with preference over the dividends on the 10,846 issued shares; and also for the purpose of passing all such resolutions, and conferring all such authority and discretion on the Board of Directors as the Meeting shall think expedient with reference to the issue of those shares.

Messrs. Richard James, John Swaffield Orton, and Francis William Russell, M.P., are the retiring Directors, and Mr. Thomas James Briggs is the retiring Auditor, all of whom offer themselves for re-election.

Notice is hereby also given, that the Transfer Books will be closed on the 28th instant, and will not be re-opened until after the Meeting.

By order of the Board of Directors,
S. BARBER, Secretary.

London, Oct. 19, 1858.

WROUGHT-IRON Guides for Gas-holders.—Designs and Working Drawings for Trussed Wrought-Iron Guides and Frames can be obtained of CHARLES DIXON, C. E., Chichester, SUSSEX.

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Notice is hereby also given, that the Transfer Books of the said Company will be closed on Monday the 25th inst., and re-opened on Tuesday, the 2nd of November next.

By order of the Board of Directors,
(Signed)
Oct. 13, 1858. SAMUEL ANDREWS, Secretary.

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JOURNAL OF GAS LIGHTING ONE PENNY NEWSPAPER

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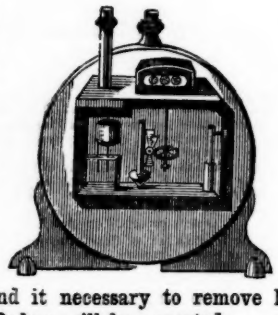

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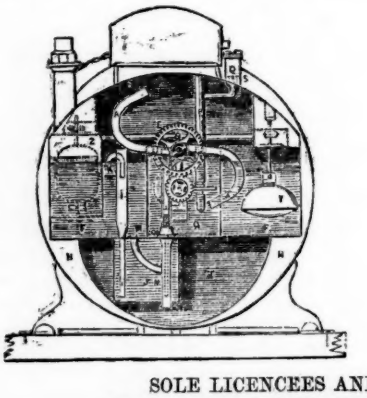

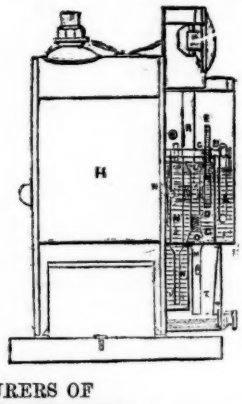

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C. and Co. continue to manufacture ordinary WET METERS of the very best description, Mr. W. Crosley having been for many years the principal and confidential assistant of his relative, the late Mr. Samuel Crosley, of Cottage Lane, City Road, up to the time of his decease, in which capacity he communicated to W. C. the secret of the mixture of the metals which has rendered the Crosley Meter so durable and superior to all others, as is evidenced by a large number of them being still at work after having stood the test of nearly a quarter of a century's use.

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NOTICES.

The subscription is 15s. per annum, if paid in advance during the month of January, or 18s. credit, in two sums of 9s. each, in July and January of each year. Post-Office orders must be made payable at the Charing-Cross Money-Order Office, to William H. Bennett, No. 42, Parliament Street, Westminster.

The next number will be published on Tuesday, Nov. 9, and the subsequent numbers on each successive alternate Tuesday.

Stamped copies, when forwarded by post, must be folded so as to expose the stamp; they are otherwise liable to the full postage charge for letters.

This JOURNAL has been duly registered at the General Post Office for transmission abroad.

All Communications to be addressed to the Editor, No. 42, Parliament Street, Westminster; and orders for Advertisements to the Publisher, Mr. W. B. King, No. 11, Bolt Court, Fleet Street.

THE JOURNAL OF GAS LIGHTING,
WATER SUPPLY, & SANITARY IMPROVEMENT.

TUESDAY, OCTOBER 26, 1858.

NOTES UPON PASSING EVENTS.

THE Association for the Advancement of Social Science, as it is called, has met at Liverpool, talked and listened to disquisitions of the usual kind; and we are happy to observe that it has done all this in a better spirit than it did on the occasion of its meeting at Birmingham. But although there has been thus a slight apparent improvement in the management of the proceedings of this body, the objections we have always felt to the principle on which it acts remains as strong as ever. There is, in fact, no such thing as Social Science apart from the application of a high tone of morality; and all the disquisitions in the world will not elucidate a principle of such uniform, such invariable application as the divine maxim that "we should do to others as we would be done by." The enforcement of this moral law cannot, however, be left to any body of itinerant debaters, nor can the various steps by which its bearings upon individual cases are ascertained be fairly considered to form the subject of scientific classification. As the *Saturday Review* very properly observed, the Association we are considering is much rather an itinerant political debating club, or at best an institution for the promulgation of certain social theories, than it is an institution for the advancement of any calmly recognized body of scientific doctrines. Moreover, the very management and the very composition of the executive body of the Association, are such as to render it impossible that their proceedings should long be conducted with the impartiality requisite in any scientific discussions; so that even if a Social Science did exist, there must be a great change in the direction of the Association before any reasonable hopes can be entertained of its materially advancing our progress towards the desired object; that is to say, towards ascertaining the laws which regulate social action. It is notorious that some of the leaders of this movement entertain, for instance, decided opinions with respect to the organization of the municipal bodies to be entrusted with the powers required for the enforcement of sanitary regulations, and that in the more abstruse question of Law Reform, others avowedly clamour for a codification of our common law and our statutes. They may be right in both cases; but neither of these dogmas has obtained the sanction of experience in such wise as to justify its being regarded as a scientific principle; yet the Managing Committee of the Association carefully exclude any papers, and prevent any discussion, on the points which are likely to shake public confidence in their own favourite opinions. There is practically no freedom of discussion, when, as in this case, the papers to be read must be submitted to the inspection of the Managing Committee; and without such freedom it is a farce to pretend that Social Science is the object whose advancement is desired by the leaders of the movement we are considering.

But, although we thus decidedly question the wisdom and the sincerity of the movement lately undertaken for the purpose of calling attention to the investigation of social problems, we concur heartily in much that was advanced by the speakers at the late meetings. Lord Shaftesbury, for instance, seems to have lost some of his faith in bureaucratic sanitary reform, and at last to have discovered that it is wiser and better to teach people how to take care of themselves, than it is to substitute the paternal care of the State for individual exertions. There was little new in what he said; but it is satisfactory to find that old household truths are admitted by modern reformers, and enforced by men who deservedly exercise the influence his lordship does. Years ago Dr. Cotton expressed more harmoniously than the noble President of the Liverpool Section for the Advancement of Sanitary Science did, that it was absurd to depend upon others for the happiness we must eventually create for ourselves; and the good advice given by Lord Shaftesbury to the labouring classes to attend to their homes, was but a prosaic repetition of the verse—

> "If solid happiness we prize,
> Within our breast this jewel lies,
> And they are fools who roam;
> The world has nothing to bestow,
> 'Tis from ourselves our joys must flow,
> And that dear hut—our home!"

So it emphatically is; and the earnest sanitary reformers, even the regretter of the days of the Tudors and their centralized tyranny, Mr. Kingsley himself, and his friends of the muscular Christianity school, may depend on it that, so long as the habits of the labouring classes are such as to cause them to find their only pleasure in coarse debauchery, it will be in vain to enforce water supplies, water-closets, or pipe sewers, by the aid of whatsoever well-paid board of literary adventurers. Mr. Kingsley's personal connexions and former literary productions, indeed, are not such as to induce any one who is behind the scenes to attach any importance to his opinions on questions of social organization; and perhaps his having been thrust forward to the rescue of the salaries of the officers of the Board of Health, may be considered as a tacit avowal of the change of opinion amongst their former patrons with respect to the necessity for retaining that mischievous institution. But be that as it may, the doctrine lately promulgated by Lord Shaftesbury, viz., that the sanitary improvement of our towns must be commenced by the mass of the population itself, is the nearest approach to the discovery of a scientific principle of any one hitherto made by that noble lord and his friends. Self-dependence and self-sacrifice are, indeed, as necessary to secure physical as they are to secure moral health. No boards or Government inspectors can teach or enforce them.

But if we thus express our concurrence in one opinion uttered by the chief of the humanitarian school, and if, also, we avow a deeper admiration for the feeling which prompted Mr. Gladstone to attend and to advocate the popular Music Hall of Liverpool, than we do for the equivocal assertions of those who have identified themselves with the jobbery of the last empirical Board of Health, we beg that it may be distinctly understood

that we dissent entirely from the ridiculous nonsense uttered by the satellites of Mr. Chadwick. As to Mr. Rawlinson and his remarks on Hospitals, they may be left until they are before us in an official form. At present it may suffice to observe simply that he is opposed to Miss Nightingale on many points; and that we shrewdly suspect that the lady knows a great deal, and the gentleman very little, about the question whereon they are at issue. But we cannot allow any member of the late General Board of Health to assert, without instant challenge, that the discharge of the sewerage of a town into a watercourse is not an objectionable proceeding. Yet this was actually alleged by Mr. Rawlinson; and he even went so far as to say that in the river Eden, now converted into the main outfall sewer of the town of Carlisle, the fish resorted in great numbers to the very outfalls of the drains! If this were true, the Thames last summer must have been a real piscatorial garden of Eden; but the story is too ridiculous to merit refutation; for it is notorious that even the eels were killed by the foulness of the Thames, and the difference between the pollution of the Cumbrian and of the Middlesex waters is one of degree, not one of kind. Such an extraordinary statement was, perhaps, thought to be necessary by the Water-Closet party to justify their persistance in the mischievous dogma that their favourite exponent of sanitary progress ought to be enforced everywhere, in spite of any opinion to the contrary on the part of those possessing the soundest local information on the subject. But soberly and seriously do we ask, whether, even if Mr. Kingsley's theory of the necessity for the establishment of a system of compulsory benevolence be admitted, the advocates for the pollution of our streams are "the educated men who could and would exterminate epidemics?"

Another grave reason to be urged against the late proceedings of the Chadwickian clique at Liverpool, is to be found in the shameful and cowardly abuse then lavished upon everybody who differs from them. This is, of course, by no means an unusual proceeding with the men who have earned so sad a celebrity amongst the jobbing advocates of the late Board of Health; nor, when the intrinsic badness of the cause they support is taken into account, can it be a matter of surprise. Abuse, indeed, at all times is the resource of those who have no arguments; and the abuse of some men is an honour. Thus, it pleased certain parties at Liverpool, in the course of the discussion on Mr. Chadwick's pet, but unsavoury subject, water-closets, to go out of their way to attack Mr. Hawksley personally and by name, because they knew that he was not present to answer for himself. Most bitterly do we regret that Lord Shaftesbury countenanced such a proceeding, by tolerating its continuance; and with equal regret do we observe that the noble and benevolent lord should have lent the sanction of his great example to this course. He seems to have uttered a violent attack upon the London Water Companies, knowing, as he did, that they cannot be represented at such Meetings as the one he presided over. Alas! we begin to suspect that there is very little of the true spirit of charity in the religious mind.

The practical results of the operations recently directed by "the educated men who could, and would, exterminate epidemics," as Mr. Kingsley calls them—we suppose he alludes to the cases of the Croydon and the Sandgate epidemics—are, however, belieing the impudent assertions of this school of sanitary quacks with singular rapidity. At Croydon and at Rugby the works of sanitary improvement have been taken out of the hands of the nominees of Mr. Chadwick, and the utter failure of the system on which those works were designed is now painfully evident. In both these cases it is found to be necessary to encounter a great outlay in order to compensate for the deficiencies of the water supplies, and to remedy the defects of the sewerage; and if we may believe the local journals, the same thing is likely to occur at Berwick-upon-Tweed, one of the towns especially favoured by the Board of Health. It is very well for Mr. Rawlinson to plead that the real working of the water supply executed by him for this town has resulted only in a partial failure; but we contend that men able to exercise Governmental influence have no right thus even partially to fail in the outlay of money raised by compulsory rating. The only pretext for the existence of a costly central board for the supervision of the operations of municipal bodies is, indeed, to be found in the security it should give against professional errors or shortcomings. But if the engineers recommended by such a central board be really more liable to error than the other members of the engineering profession, the action of the board would be, to say the least of it, mischievous; and Mr. Kingsley and his friends would do well to inquire who it was that designed, or superintended, the works at Croydon, Dartford, Dover, Sandgate, Epsom, Salisbury, Southampton, Rotherham, Rugby, Stratford-upon-Avon, Hitchin, Berwick, &c., before they call for an enforcement of a system which has already produced such fearful results. It was the compulsory character of the operations, and of the agents sought to be imposed by the late Board of Health, which was the objectional part of the business; yet this is precisely the part which the "Representative men" at the late Liverpool Debating Club were so anxious to enforce.

However, at Croydon it is now found that the works which were declared in 1852 to be sufficient for any possible requirements of the town for the next thirty years, are so unsatisfactory that the supply of water is no longer constant. The total maximum yield of the well in twenty-four hours is 966,000 gallons, and the actual consumption is not less than 840,000 gallons, even by limiting the distribution between the hours of six and ten, or during two-thirds only of the day. At Rugby the result has been far worse, and very serious personal inconvenience has been felt by the highly-taxed dwellers in that classical centre of muscular Christianity. We observe that at last the Local Board of Health of this town is about to undertake a rational operation for the purpose of combating the want of water it suffers under; and that it is proposed to bore into the new red sandstone for a supply. From time to time we have recorded the progress of the experimental boring, which has been carried to 782 feet from the surface into the sandstone or water-bearing beds of this geological formation. Now, it is proposed to enlarge the bore-hole, to pipe it through the loose strata, and to continue the boring to a greater depth until water be met with. This course ought to have been adopted in the commencement, instead of attempting to obtain water by the ridiculous scheme of the pot-pipe gathering-grounds enforced by the "epidemic makers," which has so signally failed, to the cost of the unfortunate Ratepayers. This tale of the failure of the Rugby works, like that of the Sandgate works upon the same system, may be commended to the attention of the Directors of the Barnstaple Water Company. As they, however, only risk their own money, they may be left to pursue their own course.

At Bradford, and at Sheffield also, it appears that great works are about to be undertaken for increasing the quantity of water to be supplied; and, indeed, throughout the country there is, as Dr. Strang very properly observed, a growing demand for that important element of domestic comfort. But again and again will it be necessary to repeat that it is as important to husband the supplies obtained as it is to obtain them; and we regret to find that the introduction of water-meters does not seem to progress proportionately with the consumption. There has been created a very unfair prejudice against this class of instruments, principally by the men who have done so much mischief in other respects by their mawkish declamations; but, inasumch as the days of the intermittent supply are unquestionably numbered, it behoves those who are charged with the defence of the public interest to discover some means of checking the wanton waste which prevails in far too many cases. Before closing these remarks, however, we would beg to congratulate the people of Bradford on securing the services of a really eminent Engineer, instead of handing themselves over to the fashionable sanitary empirics. Are the canny people in the north really becoming aware of the utter ignorance and incapacity of the whole set?

In the other country districts it appears that the new Local Government Bill is being treated with the contempt it so richly deserves. We hear, indeed, of its rejection on all sides; so that there is a great probability that the new brass plate on the door of the last house of Richmond Terrace may soon follow its predecessor. By the way, in the address from the Lord Chancellor of Ireland to the Liverpool Debating Society, that learned judge said (substantially) that the laws ought to be revised, in order to simplify, condense, and grammatically express them; he himself oddly enough illustrating the necessity for the latter improvement in official education by the production of as badly written a document as any one ever issued by the Chadwickian school. But, as we are now blessed with an Administration which numbers in its ranks novel-writers like Mr. Disraeli and Sir E. Bulwer, and poets like Lord J. Manners, it is possible that a little more attention may be paid to the style and wording of official documents than of yore. We

therefore recommend to the attention of the Board, or Committee of Education especially, the brass plate at Richmond Terrace we have above referred to. It bears the inscription, "Local Government Act Office," as though the Act had a personal and positive existence. Really, if the jobbery of the old Board of Health must be repeated under a new title, that title should not involve a grammatical absurdity. The plate reminds us of the "self-cleansing sewers." These things themselves are but trifles, but they are strong indications of the character of the men particularly responsible for the expressions supposed to symbolize the principles it is desired to enforce. In these days, too, when words are things, the words themselves must be carefully selected.

The manufacturing interest of the metropolitan districts is beginning, we observe, to make serious efforts to procure the removal of the Coal-Tax. This is a more difficult question than it appears at first, and it is one which merits the most careful examination. We will return to it hereafter.

REVELATIONS OF A BUBBLE COMPANY.

We have from time to time noted the rise, progress, culmination, and bursting of that great bubble of the Paris Bourse, *L'Union des Gaz*. In recounting the history of the monstrous project, it was our chance to tell how M. Omer Salmon, the projector of the scheme and the *gérant* of the company, raised £400,000 sterling to make gas on a well-known worthless plan; how he obtained 2,400,000 francs for the revived invention; how he entered into contracts to supply gas to various towns in France for less than cost price; how he, nevertheless, contrived to pay dividends of 12½ per cent.; and how the shareholders, in the exuberance of their delight, sounded loudly the praises of M. Omer Salmon, and voted him a salary of 20,000 francs per annum. Our warning voice was stifled by the flourishes of trumpets resounding his triumphs, and by the rejoicings of the shareholders at their great gains. But dividends of 12½ per cent. could not long be paid by a losing concern out of capital. The trumpets ceased to flourish; the rejoicings were turned into wailings; and M. Omer Salmon *resigned*, leaving Messrs. Goldsmid and Gregory to gather up the remnants of the wreck. The new *gérants* set assiduously to work to unravel the mysteries of their predecessor's management, and at the last general meeting they presented their revelations. Their report fully confirms our worst suspicions of the much-vaunted management of M. Salmon, and gives, we hope, the *coup de grace* to the absurd plan it was the object of his scheme to revive, of distilling gas coal with the waste heat of coke ovens.

To add to the perplexity of the affairs of *L'Union des Gaz*, they were intimately connected with another bubble speculation—a glass-blowing company—of which the brother-in-law of M. Omer Salmon was the manager. That personage, M. Baron, was much cleverer, in a certain sense, than M. Salmon himself; for he managed the affairs of the glass company so adroitly, that after embezzling securities and money to a large amount, and after declaring a dividend when the losses were enormous, he cajoled the shareholders into voting him a gold medal of honour. Not content, however, with his special sphere of operations, he contrived to obtain an appointment in *L'Union des Gaz*, and took an active part in the management of that company. Under the joint direction of M. Omer Salmon and his brother-in-law the capital of the two concerns, amounting to upwards of £600,000, quickly disappeared;—that of the glass company having first taken to itself wings. In the want of ready cash to pay dividends, and to keep up appearances, money was raised at the usurious rates of 30 and 40 per cent., for payment of which the property of both companies was pledged. It was impossible to keep up this game long. The glass company broke first, and its bankruptcy put a stop to the seemingly prosperous career of *L'Union des Gaz*. The affairs of the two companies were so mixed together by the joint management of the brothers-in-law, and the accounts were so confusedly kept, that each claimed to be the creditor of the other, by sums amounting to 300,000 francs and upwards. It has also come to light that a M. Valette, who had been an agent for the disposal of shares in *L'Union des Gaz*, pocketed a million of francs he had received; but that embezzlement was concealed from the shareholders. Valette has gone to his last account, and only a small amount of property is left behind to make good the default.

The manner of conducting the actual business of the company was little less ruinous to the concern than the wholesale frauds and robberies committed by the late *gérant* and his friends. The revelations of the report on this point deserve to be published entire. The *gérants* say,—

> You must remember the sad account given last year of the state of the works. It was not at all exaggerated. Everything that is most ruinous in the different systems tried for making gas had been adopted. Mains of earthenware, of wood, and of zinc were laid down in some towns, and the leakage amounted to one-half the gas produced. The ovens on the Salmon system burnt the coal uselessly, and encumbered the works with mountains of coke which could not be sold, and, deteriorating in value, it was necessary to dispose of it at any price to clear it away. From some inexplicable motives, contracts for lighting had been entered into at rates of 30 and 40 centimes per mètre below the ordinary charge, and even below the cost price of the gas; whilst contracts for the supply of coals and other articles had been concluded at extravagantly high prices. All these disastrous engagements have terminated one by one, but they weighed heavily upon us at the commencement of our undertaking.

Such is the account given by the new *gérants* of the condition in which they found the affairs of *L'Union des Gaz* when they undertook to set the wreck afloat again. But what, it may be asked, has become of M. Omer Salmon and his worthy brother-in-law, by whose united efforts this state of things was brought about? Where have they retired to enjoy the *otium cum dignitate* earned by their brief but brilliant services? On what scene of action does M. Baron display upon his breast the gold medal of honour, presented to him by a grateful company? Alack for fallen greatness! Truth and justice compel us to record, with what reluctance we will not say, that the place selected for the retirement of the two worthies is the shady retreat of a French prison; and that the scene of action whereon the Knight of the Gold Medal last displayed himself was the Tribunal of Correctional Police in Paris. By that tribunal, Baron—against whom there were several charges, involving embezzlement, irregular bankruptcy, and violation of the law on companies—was sentenced to be imprisoned five years, and to pay a fine of 3000 francs; Salmon was condemned to two years' imprisonment, and to pay a fine of 500 francs; and an accomplice named Rouillier, who had lent them money at exorbitant interest, was convicted of usury, and sentenced to three months' imprisonment, and to pay a fine of 20,000 francs. *Sic transit gloria mundi!*

It is to be hoped that the memory of their deeds will not depart so quickly as the short-lived glory acquired during their shameless career. These revelations should serve as a lasting caution against embarking money in speculations, however tempting, which have no better foundation than fallacious representations, and against trusting the management of an important undertaking to any but men whose well-known integrity is a guarantee for its honest administration. In such hands we feel assured the affairs of *L'Union des Gaz* are now placed, and the report shows that the new *gérants* have done all that was possible to lift the shareholders out of the slough of despond into which they were plunged. By getting free from unprofitable contracts, and by substituting the usual mode of manufacturing coal gas for the worthless process revived by M. Salmon, Messrs. Goldsmid and Gregory have put the company in the way of realizing profit instead of sustaining losses; and though rough weather is still to be encountered, there is a reasonable prospect of their bringing the wrecked ship to a safe harbour at last.

A PUBLIC BORE.

Notwithstanding the redundancy of our legislation, there is not a single Act of Parliament to put down one of the most serious annoyances in our social system. There are laws to punish almost every conceivable public or private wrong, from the perpetration of high treason to the stealing of a potato, and for the suppression of all imaginary nuisances, from the smell of a gas-work to the sound of a barrel organ, but there is no remedy against that greatest of all real nuisances—a Bore. You may be seized by the button in the street, when hurrying to keep an appointment, and be compelled to listen to a long story of a parish grievance; all the pleasure of a social evening may be destroyed by one interminable talker, who will persist in monopolizing the attention of the company; or the business of a public meeting may be disturbed by some self-sufficient insignificant shareholder who, despite of coughing and the cries of "question!" will continue to speak on and on without meaning and without end. You may, it is true, wriggle yourself from his hold in the street by leaving the button of your coat in his hand; you may yawn, and turn your back, and retire from the private party; and, after calling out "question!" till you are hoarse, you may retreat from the public meeting; but in every case the Bore is left in

triumphant possession of the field. He retains the button as a trophy, he remains to partake of the cake and wine, and he out-talks the rest of the shareholders.

The conduct of the Bore is a gross outrage on the feeling of justice and on the common sense of which Englishmen boast, and yet, strange to say, no legal measures have been adopted to abate the nuisance. There is a reluctance in our legislators to interfere with the liberty of speech and of action so long as speeches and actions are not treasonable nor felonious; and this punctilious regard for the liberty of the subject leads them to the inconsistency of allowing a single individual practically to prevent others from speaking, and to interfere with the progress of public business, even more effectually than if he forcibly interrupted the proceedings. It may be presumed, perhaps, that the gentlemanly feeling and modesty common to our countrymen would prevent obtrusion and annoyance, and that the expression of opinion would be a sufficient check to impudent self-sufficiency. But every-day experience proves that there are persons who, either for the sake of notoriety or with the deeper design of being bribed into silence, disregard the sentiments that usually actuate gentlemen, and persevere in annoyance against the indignant reprehensions of a unanimous meeting.

A simple and efficacious protection from pertinacious twaddle might be contrived, that well deserves the consideration of all public bodies, not excepting the honourable members who assemble within the Palace at Westminster. Without any great stretch of the inventive faculty, a large extinguisher, impervious to sound, might be constructed and suspended from a movable bearing, so arranged that under the guidance of the chairman it might be dropped over any Bore who continues speaking against the general wish of the meeting. By thus "taking the law into his own hands," the chairman would throw upon the stifled Bore the *onus* of proving that any offence had been committed; and should he bring an action for false imprisonment, the whole meeting would be witnesses to substantiate a justification.

The necessity for some provision of this kind, in the absence of any legal enactment, seems called for at the present time in consequence of the reappearance at the half-yearly meetings of the metropolitan gas companies of the "Box nuisance," of which we have had previous occasion to speak. It might have been hoped that his appointment of auditor to the Phœnix Company would have so far satisfied his desires and tranquillized his discontented spirit, that he would have suffered the other companies to transact their business in peace. But, Phœnix-like, he has risen again, and, judging from his conduct at the late meeting of the Commercial Company, he threatens to be as obstructive at all the meetings into which he can gain admission by the purchase of a few shares as on former occasions. It would be a rich treat to see the extinguisher fall upon the agitator for place in the midst of an oration; and it would be no less gratifying to witness the uncovering at the close of the business, and to hear the continuance of the speech under altered circumstances. Time will scarcely allow of the construction of the suggested contrivance for the forthcoming meetings, but if the Box nuisance should disturb their proceedings, we trust the chairman will not hesitate to adopt the ruder means at command, and have this public Bore ejected.

A more courteous and honorary way of getting rid of the Box nuisance from the meetings of gas companies would be to transfer his scene of action to Parliament, by returning him as the presentative of some insignificant borough. The Lower House has for some time past had its Cox, who on rising to speak raises a general cry of "Oh!" and empties the benches. But Mr. Cox is not always in his place when a "count out" is wanted; therefore it would be desirable, on more accounts than one, that the House of Commons, as well as the Olympic, should have its *Box and Cox*.

Circular to Gas Companies.

In our present number we publish a letter from Mr. Laming in reply to that of Mr. Hills which appeared in our last impression. Without pledging ourselves to an entire assent and approval of all the minor points raised by Mr. Laming, we think that, altogether, he has put forward a very satisfactory defence of his own patent. His letter corroborates somewhat in detail the interpretations we have previously put on his specification, and we would direct our readers' attention particularly to Mr. Laming's quotation from a report by MM. Chevallier and Poinsot. As we stated in our last number, it had been matter of common knowledge for years past, that, by exposure to air, a mixture of chalk and muriate or sulphate of iron would result in the production of hydrated peroxide of iron; and we were much astonished to find this circumstance denied or ignored by the chemists engaged for the plaintiff. But we were not aware that the details of the decomposition had been so minutely studied as they now appear to have been. We have read the original report of MM. Chevallier and Poinsot, forwarded to us by Mr. Laming, and from the account of their experiments we cannot doubt the accuracy of their conclusion, namely, that chalk as well as lime will decompose protosalts of iron, or, at any rate, mixtures of protosalt and persalt, as all commercial protosalts are known to be.

We also stated in our last number that Mr. Laming's description in his objection-paper, read by Mr. Newton before the Attorney-General, was an exact description of what takes place in working Mr. Hills' patent. Mr. Laming recalls to our recollection a corroboration of this view, taken from Mr. Hills' own specification, wherein he says that during the revivification, in addition to the peroxide of iron, "a small but variable quantity of sulphuric acid will be formed," which, in the absence of ammonia and earthy bases, as when the oxide is used *per se*, will, we need scarcely say, produce a sulphate of iron as mentioned in Mr. Laming's objection-paper.

In reference to his mixture of chloride of calcium and oxide of iron, Mr. Laming considers that the bearings of the subsequent paragraphs of his specification upon the much-disputed phrase, the oxides "are useful for the said purification, and need not be removed," were not sufficiently dwelt upon at the trial. He urges with some force that the expression "*need not be removed*" does not in any way imply ignorance of the efficiency and importance of the oxides. For although when the purification of gas from ammonia is chiefly considered, he contents himself with saying that the oxides need not be removed, yet when the complete purification of the gas at one operation is considered, he expressly directs the addition to the mixture of more oxide, "obtained in a proper state from any other economical source;" thereby showing that he did not consider the presence or absence of the oxide a matter of indifference.

The lamentable accident which has recently taken place at Newport, in Monmouthshire, occasioned by the fracture of a gas main (in consequence of the negligence of the contractors in the execution of the sewerage works in progress in that town), whereby three members of a family were suffocated in their beds, ought to arouse gas companies to greater vigilance in the protection of their interests wherever such works are being carried out. Hitherto the companies appear to have submitted to the losses and inconvenience which such operations have entailed on them, in the belief that they had no remedy; but on this point they are unquestionably in error, as was proved some twenty years since in an action brought by the York Gas Company for damages which their pipes had sustained in laying those of a rival company. In this case the old company recovered the full value of the gas proved to have been lost by the operations of the new company up to the period when the action was commenced; and had not an amalgamation between the two companies ensued, similar actions might have been successfully maintained year after year as the losses accrued. The plaintiffs were able to prove, from accurately kept accounts, extending over several years, how much gas was unaccounted for year by year, and how much greater this loss had been since their pipes had been disturbed by the operations of the defendants, and they claimed to be paid for the excess, and, moreover, established their claim. An instance has lately come within our own knowledge where, in constructing sewers and laying water-pipes in an important provincial town, the leakage of gas has increased from 11 to 26 per cent. upon the total quantity produced, adding thereby nearly £700 per annum to the cost of carrying on the undertaking, but as yet no claim for compensation has been made on the local board under whose direction the works have been carried on. This hesitation may be in some measure ascribed to a prevailing idea that the contractors, and not the authorities who employ them, are the parties liable to be called upon for compensation; but the Court of Queen's Bench has recently held that the contractor is the agent of the board, and that the latter are directly responsible for any damage caused by the neglect of their agent; from whom, however, they may in their turn recover whatever they may have been called

upon to pay on this ground. Without this liability hanging over them, a premium would be offered to local boards to employ men of straw as contractors; and as extensive works of this character are about to be commenced in the metropolis and elsewhere, it will be well for gas companies to keep this matter in view, so as to be prepared to support a claim for compensation in the event of their pipes being damaged.

With reference to our late remarks upon the abuses alleged to be practised by the systematic overcharging of meters with water, we are requested by Messrs. John Beverley and Son, of Leeds, to state that they have for many years past manufactured a meter which cannot be overfilled, and which they denominate an "Equitable Gas-Meter." There are doubtless many other manufacturers of low-spouted meters besides those mentioned in our notice, and we invite them to favour us with their names, which we shall have pleasure in recording in confirmation of our denial of the assertion that high-spouted meters were a necessity. Accumulated proofs of extreme laxity on the part of the officials charged with regulating the water in such meters reach us from unexpected quarters, and go far to prove that the complaints on this subject have not been exaggerated.

Correspondence.

HILLS *VERSUS* THE LONDON GAS COMPANY.

SIR,—Your patient commentary on Mr. Hills' long letter in your last number is so replete with facts and unanswerable arguments, that perhaps little is needed to be added to it; but, nevertheless, I will, with your permission, offer a few further remarks, as I think I can throw additional light on the quality of the reasoning with which he expects the world to be satisfied, as well as on his own want of candour while charging all who differ from him with wilful misrepresentation.

Mr. Hills takes shelter from my prior patent of 1847, first, by alleging that its specification gives no directions "that will *necessarily* produce hydrated oxides;" and, secondly, by concluding that "if they are not necessarily produced by the directions given, there can be no publication of their use." He at the same time insists that "if a thing is not clearly mentioned or directed to be done, it cannot be a publication," we having, says he, "no right to *suppose* anything in a specification." I admit, to begin with, that *if* my specification gives no direction by which hydrated oxides are necessarily produced, it can make no publication of their use; and I am content to give my opponent all the advantage he can extract from the principles which he himself has laid down for construing a specification. Mr. Hills points to the following phrase—"decomposing muriate of manganese, iron, or zinc by means of lime, or of chalk when the latter will suffice;" which he tells us means, not, as simple people might suppose, that the operator *may* use chalk when it will answer his purpose, but that at such times he may not use lime; and next, having assumed that chalk will never do at ordinary temperatures, he proceeds to say a red heat must have been originally contemplated; so that he makes the process to consist exclusively of using red-hot chalk. Now, in the first place, he will not pretend that my phrase "clearly mentions" a red heat for the decomposition of the muriates, or that it "directs it (the decomposition) to be so done;" and therefore, without going any further, Mr. Hills' reading of my phrase stands condemned by his own rule. Will any one who knows anything about that gentleman suspect him of being so great a novice in patent law as not to be aware that the intention he imputes to the phrase needed only to be proved, and the whole specification would have been declared legally bad, for practising concealment with respect to the red heat?—nor need we inform him that, with such an intention proved, the mere mention of "lime" in the phrase would have condemned the patent for unnecessary complexity, with a design to mislead.

But we can afford to release Mr. Hills from the severity of his own rule for construing specifications, by conceding to him that if mine had only *implied* a necessity for a red heat in the decomposition of the muriates, without going so far as clearly to mention or direct it, the implication would have justified his construction. Let us try the issue with this additional facility in his favour. We find him urging that it is evident a red heat was intended, because chalk will not decompose the proto-muriate either of manganese, iron, or zinc at ordinary temperatures; or, at least, that if it will do so in the case of iron, Mr. Laming only recently discovered that fact, and therefore could not have meant to embody it in his specification. Now, the facts of this case are so important, that, to establish them on an unquestionable foundation, I will accompany this paper by a pamphlet which, as you will see, was printed in Paris in 1853, and wherein M. Chevallier, of the *Ecole de Pharmacie* and Imperial Academy of Medicine, and also M. Poinsot, of the *Conservatoire des Arts et Métiers*, have thus written:—"Mr. Laming has been reproached by MM. Gauthier de Claubry, Barruel, and Lassaigne for having indicated (in his French *brevet* of February, 1849) results which are chemically impossible; for example, the decomposition by chalk of salts of protoxide of iron. We have deemed it right to verify that fact by experiment; and we have found that, under the circumstances indicated in the *brevet* of Mr. Laming,—that is to say, in mixing a solution of the sulphate of protoxide of iron with chalk and sawdust, and in leaving the mixture exposed to the atmosphere,—that the surface of each fragment of the mixture assumed a green appearance, which colour, by the contact of the air, changed rapidly to the rusty red of peroxide of iron. That green colour indicated decidedly that at first a compound of protoxide of iron was formed—either carbonate of the protoxide or the protoxide itself; and which changed into the peroxide by the contact of the air. To be quite certain that the sulphate of the protoxide of iron was really decomposed by the chalk, we mixed the two together without adding any sawdust. We then remarked that the action of the chalk was much more slow, but became very sensible after some hours. We demonstrated the fact in the following manner: we washed on a filter the exposed mixture of sulphate of iron and chalk until all the undecomposed sulphate of iron was dissolved out, and there remained on the filter an insoluble substance coloured red by peroxide of iron formed on its surface. When the water which passed through the filter no longer gave to re-agents an indication of the presence of iron, we treated the insoluble matter on the filter with a feeble acid—acetic acid, for example; and in the resulting filtered solution we then easily discovered the presence of protoxide of iron, which must inevitably have been on the filter in the insoluble state either of carbonate of protoxide of iron or hydrate of the protoxide itself. We insist on the presence of protoxide of iron in the mixture of chalk and sulphate of iron as a proof that the decomposition is not due to, or consequent upon, the transformation of the oxide, which latter salt is admitted to be decomposable by chalk. sulphate of protoxide of iron into the sulphate of the per- We see, therefore, that the impossibility alleged by MM. Gauthier de Claubry, Lassaigne, and Barruel is not one, and that this fact of the decomposition of salts of protoxide of iron by chalk, though not generally indicated in chemical works, is not the less an exact fact. To conclude, under the conditions indicated by Mr. Laming the decomposition is so rapid that its progress can be followed by the eye."

I recommend the above quotation to the attention in particular of those British chemists upon whose scientific information Mr. Hills was probably relying when he ventured in his letter to assert that a proto-salt of iron spontaneously changes into a persalt, before it can be decomposed by chalk at ordinary temperatures. With respect to the denial of the fact, had it even been well founded, it would have failed in doing what Mr. Hills' case required, namely, to prove that a solution of proto-muriate of iron, absorbed into sawdust and mixed with chalk at atmospheric temperatures, did not practically result in a mixture containing hydrated peroxide of iron. And here let me remark that sufficient attention has never been directed to the fact of my specification recommending not only that chloride of calcium should be absorbed in solution into sawdust, but also muriate of iron; so that when the latter is mixed on the floor with lime or chalk for making chloride of calcium, the free access of atmospheric oxygen to the resulting hydrated protoxide, or carbonate of protoxide, inevitably and speedily makes it into hydrated peroxide of iron. Mr. Hills declares, probably with great truth, that he has had carbonate of protoxide of iron "mixed for weeks with sawdust in large masses without its changing to any considerable extent into peroxide," but for some cause or another he has refrained from saying whether the sawdust was large enough in proportion to make the mass porous; we need hardly be assured that he himself would find it difficult to absorb oxygen if as carefully deposited in a cask of tallow as his sawdust must have been in pasty carbonate.

After the above-cited evidence of the French *savants*, tacitly acquiesced in by their distinguished compatriots, Mr. Hills will hardly again question the fact he has once publicly denied, or endeavour to make it appear that in the writing of my specification in May, 1848, I implied, in the faintest manner conceivable, that a red heat was necessary for decomposing proto-muriate of iron by chalk; he may, however, affect to ask me this question: If you intended the operator under your specification to use either lime or chalk at his option, why did you not say—"decomposing muriate of manganese, iron, or zinc by means of lime, or of chalk," without adding "when the latter will suffice?" But in answer he will not need to be told that without that qualifying addition the specification would have been bad, because at the ordinary temperature of the atmosphere, which alone it contemplated, chalk would not in every case have succeeded.

Having thus proved that the protosalts of iron are decomposable by chalk at common temperatures, we may safely adopt some of Mr. Hills' reasoning that happens to be sound and unobjectionable. "Laming says that lime may be used instead of chalk to decompose the muriates. Well, suppose it be—why should not the decomposition be effected in the same way as when chalk is used— * * * * what is to give any idea that the decomposition by lime is not to be effected in the same way as when chalk is used? There is nothing." Now, as muriate of iron is decomposable by chalk at common temperatures, and as chalk has the recommendation of being cheaper before than it is after it has incurred the expense of being heated to redness, it is not to be

imagined, even by Mr. Hills in future, that the chalk will be used for the purpose at a red heat; and if lime be used in the same manner, then, in either case, the decomposed mass having been made porous by sawdust, is Mr. Hills prepared to deny that the purifying material so made will be found to contain the very hydrated peroxide of iron which he has laid claim to as his invention? When prepared by lime, my specification calls it by its generic name—oxide; in the other case, in deference to the mode of its formation, and in conformity to a custom (founded on the fact that it long retains in connexion some carbonic acid), I have called it carbonate; but the name does not alter the nature of the thing, in both cases it is an oxide of iron, and being in a "proper state" for purifying gas (whether that state be conferred by hydration or disintegration is of no importance) it comes under that clause in my specification which directs it, however obtained, to be mixed, in proportions unlimited, with the muriate of lime or of iron used for the extracting of ammonia. Mr. Hills' disclaimer of hydrated peroxide of iron mixed with muriate of lime is nothing short of an acknowledgment that he found in my specification the hydrated peroxide so mixed; while by the reason he has assigned for that disclaimer, namely, the pastiness of muriate of lime, he stultifies himself, having claimed in his own specification the same oxide mixed with the equally pasty muriate of magnesia. In each case, as every chemist, and gas-engineer also, who has used the mixture must know, the sawdust which is added to make the mass porous, or permeable to the gas, removes the pastiness. Justice need not drop the emblematical bandage from her eyes to find her way through so flimsy a barrier as Mr. Hills has spun to oppose her progress; and patent law will see in it only an attempt to make a variation without a difference—or, in other words, to substitute for a valuable invention an evasive equivalent.

That Mr. Hills should wish to defend himself against the document which Mr. Newton read at my request to the Attorney-General, is natural enough; but the way in which he sets about it adds nothing to his reputation for candour in argument. He thus writes:—"*If* Mr. Laming had a paper when he opposed me in September, 1848, which mentioned renovating oxides of iron, it *would be* a different method to mine, as he says his plan converts the material partly into sulphate of iron; whereas, by my mode of renovation, sulphate of iron is not formed." A logician careful for the truth, and who had learned from the paper itself what I had said in it, would have written *as* instead of *if*, and *is* instead of *would be*; in place of *renovating oxides of iron*, he would have honestly adopted the pertinent language of the paper, and said, *revivifying hydrated peroxide of iron*. But these are only the small and superficial symptoms of a deep-seated evil; there is another as deep as the evil itself, but we can get at it. If we search Mr. Hills' specification, we shall find that his patent is for purifying gas from sulphuretted hydrogen by hydrated peroxide of iron, sometimes mixed with sawdust only, and for the subsequent renovation of the used peroxide; we shall also perceive that he tells us "a small but variable quantity of sulphuric acid will be formed" during the process of renovation. Now, Mr. Hills, surrounded as he is by eminent chemical advisers, can hardly be ignorant that sulphuric acid formed in a mass of oxide of iron, such as that in question, will combine with it, and form sulphate of iron; or that, if ammonia from the gas, or an earthy base be present in the mass, the sulphuric acid will in preference combine with that base, with about as much deference to my paper as to his specification. As I am upon this subject, it may not be amiss to ask Mr. Hills whether the world would have been instructed by his specification, enrolled in May, 1850, about the formation of sulphuric acid in a mass of oxide put out to revivify, if I had not, a few weeks earlier, proclaimed the fact at the Society of Arts, and forthwith caused the memoir to be printed in the *Mining Journal?*

Mr. Hills tries to justify his tardy admission of my claim to the originality of the invention of the revivification, now that he can no longer dispute it, owing to the public knowledge of my French *brevet* and of my English opposition-paper, by alleging an obstacle in the way of his faith, which obstacle he represents as having been insuperable. He professes to think it "exceeds belief that Mr. Laming should know anything about renovation in June, 1849, and not have told Mr. Evans;" but, unfortunately for him, he bars the means of escape he would thus open, by admitting, in the next breath, that with a proper knowledge and appreciation of my invention I should "certainly have patented it before I allowed Mr. Evans even to try it." Mr. Hills probably does not forget that only a few weeks earlier he himself was in treaty for my gas purifying inventions, and yet failed to know anything of revivification; he can therefore practically understand, that had not Mr. Evans accidentally discovered my secret, by opening the purifier before I intended, and during my absence, it would not have been communicated to him until I had secured it by patent.

Lastly, I will remark that Mr. Hills challenges gas companies with the assertion that the revivified oxide-of-iron process of purification "cannot, at all events, belong to them," even if it be not his by patent right. For, says he, "I have made an agreement with Messrs. Laming and Co., by which they have given to me all claims they may have to the right of purifying gas" by passing it in contact with hydrated oxides of iron. It will be time enough for gas companies to consider a claim thus founded when Mr. Hills urges it by virtue of my patent and not his own. The consequences to my late firm are far from being the same; but so far as I am a party to the agreement made with Mr. Hills, I shall abide by it, though it was an involuntary act on my part, my own vote being powerless in opposition to the two of my late partners. I bear in mind, however, that I insisted on the insertion of a protest refusing ever to acknowledge Mr. Hills' right to hydrated oxides, and that the agreement imposes upon me no obligation of any kind to abstain from the opposition I have always counselled and to the utmost of my power practised.

Before I close, let me direct your readers' attention to a misunderstanding which prevailed during the late trial at Guildford, probably to the prejudice of the defendants' case, and certainly to the disparagement of the due effect which my specification would otherwise have produced. In that document, which it will be remembered is bound to be comprehensible only to chemical engineers engaged in gas purification, I state in one place that the oxide of iron which results from the decomposition of muriate of iron by lime *need not be removed;* and in another place I direct more of the oxide to be added to that mixture to increase its usefulness. Now, if the oxide were of that indifferent utility in a process that it only need not be removed, it would be senseless in the same process to increase its quantity. This conviction evidently pervaded the minds of the judge and counsel, and perhaps also of all in court who thought upon the subject, excepting only those whose technical acquaintance with gas taught them that the specification was referring in the two places to two distinct processes. One being simply for purifying from ammonia such gas as was afterward to be submitted to the ordinary lime process (in which case the oxide, though it would economize lime, would not aid in the purpose for which the process was expressly in use); and the other being for the purifying of gas from its ammonia and sulphuretted hydrogen at one and the same operation (and in which case oxide might be advantageously added to the mixture, for accomplishing its legitimate purpose). Had the validity of my patent been under trial, this two-fold intention of my specification must have come out in evidence; but it might have been brought out by the chemists consulted for the defence, and it hardly admits of doubt that had it become known and appreciated their cause must have been thereby considerably profited, as there would then have been traced to design what it best suited the plaintiff to have appear as an accident.

RICHARD LAMING, M.R.C.S.

Hayward's Heath, Sussex, Oct. 20, 1858.

Register of New Patents.

641.—JOSHUA HORTON, of Smethwick, in the co. of Stafford, manufacturer, for "*An improvement or improvements in the construction of the girders used in the guide-framing of gasholders.*" Patent dated March 26, 1858.

The claim is for the construction of the girders used in the guide-framing of gasholders herein described; that is to say, making the said girders of wrought iron and cast iron combined, the upper and lower edges of the girder being made of angle iron or T iron, and the web of the said girder being made of plates of cast iron bolted or riveted to the bars of angle iron or T-shaped iron as described.

833.—EUGÈNE FRANÇOIS SANS, Epernay (Marne), France, engineer, for "*Apparatus serving to measure upon a large scale the smallest pressure of any fluid matters.*" Patent dated April 17, 1858.

This invention consists of an oblong shallow box, made of metal or glass, into which a glass tube is inserted at the lower front edge, and carried diagonally across to the upper edge; behind this tube is a scale from which the pressure may be read off. The inlet for the gas is upon the upper part of the front of the box before alluded to.

853.—JAMES HOWORTH, of Farnworth, in the co. of Lancaster, tin-plate worker, for "*Improved apparatus to facilitate the discharge of smoke and prevent its return, which said apparatus is also applicable for the ventilation of buildings.*" Provisional protection only obtained. Dated April 19, 1858.

The apparatus consists in an exterior can or casing of metal, within which is supported a central vertical rod or spindle, upon the upper extremity of which is placed a cap (forming a cover to such casing), which may either be conical-shaped or otherwise, and having curved or spiral openings at the sides for the discharge or emission of smoke, when employed at the top of a chimney for such purposes. Upon this central spindle, and within the said casing, at a point above the middle of its length, a conical spirally-leaved vane is placed and kept in constant rotation by the ascending current, and is also so arranged as to admit of the passage of the smoke or current of air in an upward direction, but to prevent its return or downward passage by its continual rotation in the same direction. When used for facilitating the discharge of smoke, the apparatus is to be placed at the top of the chimney or flue; and when employed for the purposes of ventilation, it may be situated in the roof or ceiling, or other convenient part of the building; or the action may be reversed, so as to supply a down draught of air, if required.

866.—JOHN BAPTIST SMITH, of Hockley, near Birmingham, in the co. of Warwick, for "*Improvements in adjusting the position of pendant and other lamps.*" Patent dated April 20, 1858.

This patent has for its object the doing away with the necessity of the counterbalance-weights usually attached to gas pendants, &c.; and the principal feature of the invention consists in the application of a very widely pitched screw to the whole length of the inner tube of the pendant.

874.—JAMES COPCUTT, of 50, St. John Street, Clerkenwell, London, for "*Improvements in the manufacture of gas, and in the apparatus employed therein.*" Patent dated April 21, 1858.

When manufacturing gas from oils or grease it is found desirable to combine with them a small quantity of camphor dissolved in naphtha, and to distil the gas from such combined matters.

The apparatus used for making oil gas consists of a retort, the form of which may be varied, and be heated externally as heretofore. The oil or grease in a fluid state is regularly fed into the retort (the bottom of which is covered with stones or other suitable substances) by means of a funnel or a pipe, which it is found desirable to bend into two coils or hoop-like bends. The products as they arise from the retort are passed by a descending-pipe below the surface of red-hot melted metal contained in a close vessel and rising up through such metal, the gas passes away for use. The metal which is preferred is tin solder, but other metal may be employed for the purpose.

When making gas from coal, the gas, after being conducted into and below the surface of the melted metal, flows into a suitable purifying apparatus to be purified. When purifying by liquids, such as lime-water or others, an apparatus of the following construction is used. The gas is conveyed in a pipe to nearly the bottom of the vessel, and there escapes into the fluid contained in the vessel. The gas, however, is not allowed to ascend directly through the liquid, but by reason of there being a number of discs at intervals apart, affixed to the descending-pipe, the gas is deflected off towards the sides, then towards the pipe, and then towards the sides of the vessel, and so on until it arrives at the upper part of the vessel, from which it is conducted away by a suitable outlet-pipe. The purifying liquid is kept constantly to the desired level by a syphon-pipe, and fresh liquid is introduced by a funnel and descending-pipe.

In order to give the gas greater and improved lighting powers, it is caused to pass over or in contact with camphorated ether before it arrives at the burner.

In generating gas from oil or grease it may be done under such a pressure as to cause it to force its way through the melted metal, or it may be otherwise forced through and in contact with it. The metal may be kept melted in a compartment of the retort itself, so long as provision is made for the passage of the gas under and in contact with highly heated melted metal. The gas need not be caused to descend more than one or two inches below the surface of the melted metal, but it is desirable that the gas should be well diffused in the metal when below the surface thereof.

It is preferred even with gas generated from oil or fats, and passed through or in contact with melted metal, that it should pass through a wet-lime purifier, as by so doing it is found that some part thereof becomes condensed therein and rises to the surface, from whence it is drawn off by a suitable syphon-pipe and returned by a force-pump back to the retort or to the vessel supplying the retort.

From the purifier the gas is conducted into a vessel the lower part of which is filled with camphorated ether, so that the gas in its passage comes in contact with the surface of such fluid. It is found desirable to employ a small quantity of camphor dissolved in naphtha—say one drachm of camphor to one ounce of naphtha—mixed with the oil or fat, previous to introducing the fat or oil into the retort.

In making coal gas, the same being as heretofore produced in a retort, it is caused to pass into and through melted metal as above described, then through a wet-lime purifier, and then through a dry-lime or other purifier; and thence through the vessel containing camphorated ether.

882.—Samuel Clegg, of Dover Cottage, Putney, Surrey, for "*Improvements in gas-meters.*" Patent dated April 22, 1858.

This invention has for its object improvements in gas-meters. For this purpose the interior of the meter consists of a series of eccentric chambers (by preference, four), which in rotating are filled and emptied in succession.

The eccentric measuring chambers rotate in a vessel which contains water, and the rotating parts of the meter are buoyed up by a central air vessel, by which the pressure and friction of the axes are reduced.

The drawings attached to the specification show the exterior case of the meter partially filled with water, and containing a drum made up of four eccentric chambers, closed on all sides, but open at both ends. This drum is mounted on an axis supported at each end on bearings carried by the outer case, and an air vessel is fixed on the axis of the drum, which, by its power of flotation, sustains the weight of the drum, and reduces the friction of the action in its bearings; and there is a passage through the centre of the air vessel to allow the water to have free access to the interior of the drum.

The aperture through which the gas enters the gas space has over it, as is usual, a valve, which descends to close it should the water be drawn out of the meter, the valve being mounted on a float. From the gas space, the gas passes by a pipe to the interior of the drum, and from thence in at one of the eccentric chambers which at the time is above the level of the water, and the pressure of the gas causes the drum to revolve. By the time that the mouth of one chamber becomes closed by passing below the water, the mouth of the next chamber will, by the revolution of the drum, become uncovered, and the gas will, in a similar way, enter it. After a time the smaller end of the first chamber at the exterior of the drum will rise above the water in the case, and will commence discharging the gas it has received into it; and before this chamber is completely submerged and emptied, another chamber will commence discharging, and so the operation continues. The exterior ends of the chambers are so formed as to prevent any splashing being produced as they leave the water; and in order that the gas may not partially escape from the chambers by bubbling through the water as the mouths of the chambers approach its surface, which, were it allowed to take place, would cause the lights in connexion with the meter to flicker, small tubes are employed, which connect each of the chambers with the chamber in advance of it. By these tubes a portion of the gas in the chambers, sufficient to relieve the pressure, is enabled to escape before the ends rise above the surface of the water.

The recording apparatus is similar to that at present employed in gas-meters.

892.—John Birch Paddon, of Gray's Inn Road, London, engineer, for "*An improvement in gas regulators.*" Patent dated April 22, 1858.

In most gas regulators as at present constructed a diaphragm in a case is acted upon by the gas entering in such a manner that when the gas exceeds a given pressure the diaphragm rises, and, lifting a valve, closes the inlet-passage, and as soon as the pressure is overcome by the weight of the valve, the valve falls and opens the passage. From the imperfect action of the diaphragm, regulators thus constructed are found to get out of order, or out of their proper action, after having been some time in use.

This invention consists in imparting to the weight or valve a constant attraction, in order that, immediately on the pressure inside the case of the regulator being diminished, the valve shall be drawn from its seat with certainty, and open the inlet-passage.

For this purpose the valve is formed of tempered steel converted into a magnet, as is well understood; and combined with it is a case of soft iron, or attraction is otherwise imparted to the valve on opening the inlet-passage by magnetic influence.

The claim is for the method of imparting to the weights or valves of gas regulators, and whether to the weights or valves directly or through rods, levers, or other appliances thereto, a constant attraction by means of permanent or other magnetism, essentially in the manner and for the purpose above described.

PROVISIONAL PROTECTION

HAS BEEN GRANTED FOR THE UNDERMENTIONED INVENTIONS.

2100.—Gabriel Prax, of Paris, manufacturer, for "*Improvements in apparatus for separating the liquid from the solid portions of fecal matter.*" Sept. 17, 1858.

2120.—Jean Clément Emile Malvezin, of Paris, gentleman, for "*Improvements in the manufacture of tubes, pipes, or mains for conducting liquids or gas, or for other similar purposes.*" Sept 21, 1858.

2184.—Frederick John Money, of Thaxted, Essex, surgeon, for "*Improvements in the construction and adaptation of sewers.*" Sept. 30, 1858.

2195.—Hypolite Monier, of Marseilles, and 2, Francis Street, Golden Square, London, manufacturer, for "*A new gas-burner.*" Oct. 2, 1858.

2223.—William Malam, of Clapham Road, London, gas engineer, for "*Improvements in apparatus for the manufacture of gas.*" Oct. 6, 1858.

2225.—Charles Baylis, of the Poultry, London, solicitor, for "*An improved mode of constructing and arranging underground chambers in populous cities or towns for the reception of gas and water pipes and telegraph wires.*" Oct. 6, 1858.

2272.—William Johnston, merchant, and William Ross, brassfounder, both of Glasgow, N.B., for "*Improvements in water-closets and taps or valves.*" Oct. 12, 1858.

NOTICES HAVE BEEN GIVEN OF INTENTION TO PROCEED WITH THE UNDERMENTIONED INVENTIONS.

1251.—John Mitchell, of Dunning's Alley, Bishopsgate Street Without, London, assayer, for "*Improvements in purifying paraffine.*" June 3, 1858.

1500.—Josiah George Jennings, of Holland Street, Blackfriars, and Thomas Culpin, of 25, Royal Hill, Greenwich, for "*Improvements in apparatus for measuring, regulating, and preventing waste when supplying fluids.*" July 3, 1858.

1504.—Josiah George Jennings, of Holland Street, Blackfriars, and James Lovegrove, of Victoria Park Road, for "*Improvements in water-closets, and in apparatus used in ventilating house drains or sewers.*"

Legal Intelligence.

YORKSHIRE WEST RIDING SESSIONS.

Leeds, Wednesday, Oct. 20.

(*Before the Honourable* E. Lascelles, *chairman; L.* Wickham, *Esq., M.P.;* Jas. Stansfeld, *Esq.; and* — Wharton, *Esq.*)

THE WAKEFIELD GASLIGHT COMPANY *v.* THE OVERSEERS OF WAKEFIELD.

Mr. Blanshard and Mr. Maule were for the appellants, and Mr. Campbell Foster and Mr. Blackburn were for the respondents.

Mr. Blanshard opened the case by stating that in 1843 the Wakefield Gaslight Company was rated at £628; in 1854 their rates were increased to £1270, and had now, in 1858, been raised to £2845. Against that sum they now appealed, and they were content to be rated at £1270.

Mr. Campbell Foster said the appellants set out with nine grounds of appeal. Of these grounds the chief was the third, which set forth that the company was assessed at a greater sum than it ought to be. The rate under which the appeal was instituted was laid by the magistrates on the 21st of June, 1858, and the rateable value of the works of the company was estimated at £2845. The property belonging to the gas company had been valued by Mr. Clarkson, Mr. Hamerton, and other competent surveyors, all of whom had estimated its rateable value within a few pounds of the sum he had named, after all deductions had been made. In order to show that the increase of the rate to which his learned friend had referred was not exorbitant, he would lay a few facts before the bench. In 1822 the Wakefield Gaslight Company was established, with a capital of £10,000, and their Act of Incorporation enabled them to borrow £2500 more, thus making an entire capital of £12,500. In 1846, owing to the great increase in the demand for gas, the company found it necessary to obtain fresh borrowing powers, in order to raise a greater amount of capital by shares; and in the following year they obtained another Act of Parliament, which enabled them to raise the capital required. The result of that Act was that in 1847 they were empowered to raise their capital to £48,300, being nearly four times more than the original amount of capital. In 1856 it again became necessary for the company to go to Parliament, and they obtained another Act, which enabled them to borrow an additional sum, which made up their capital to £79,825, if they required it. At the time the company was established the population of Wakefield amounted to 10,000 inhabitants, but since then the district of the company had been enlarged, and its population amounted to 40,000. In 1847 the company had five gasholders, which would hold about 99,000 cubic feet of gas; and in addition to that they had constructed a new one, which would hold something like 400,000 cubic feet of gas, thus showing an enormous increase in the company's business. In 1847 the mains of the company were 22,185 yards in length, but they had now extended to 42,624 yards, being about double.

Prior to the company obtaining their Act in 1847, Mr. Whittaker, the secretary of the company, was examined before surveying officers previously to going before a parliamentary committee, and in the course of his examination he handed in a number of documents, papers, &c., the object of which was to show that the company required an increased capital. At that time evidence was also tendered to show that the annual net income of the company, over and above all expenditure, was £816, and it was rated at £628. To that assessment the company did not object. The rate was afterwards increased year by year until, in 1854, it was increased to £1300. In consequence of the great increase of the company's operations, and of the numerous complaints made by several ratepayers that the company were underrated, intimation was made by the overseers to the company that their plant must be re-valued and measures were accordingly taken to have that carried into effect. The result was that an interview took place between them and Mr. Statter, the chairman of the company, when he furnished them with a statement showing that the net income for the year 1857 alone was £4169. 16s. 1d. He also made another return showing that the company supplied the out-townships of Alverthorpe and Stanley with gas; and, therefore, deducting for expenditure one-seventh for the out-townships, it reduced the sum to £3574 as the net income and total profits derived by the company from their works at Wakefield. They had, therefore, more than four times the amount of income which they had in 1846, while they had not been rated in an equal degree, but were less than their net income. That was one way of testing the increase of their income, and another way was this:—In 1847 their capital was £43,300; they afterwards borrowed £5000, so that they had a capital altogether of £48,300. Upon the borrowed money they paid 4 per cent., and upon the other sum they paid a dividend of 10 per cent. According to the statement handed in, it appeared that the company paid for their renewals out of their annual income, and not out of their capital, and that being so, there was nothing to deduct for wear and tear. They also paid to the shareholders as dividends, and for mortgages and interest, £4530—that being their net income. From that sum, however, they would have to deduct one-seventh, which would reduce that sum to £3882. That sum being the total profits of the company, they ought to be assessed for Wakefield according to that test. After deducting a fair allowance for tenants' profits, perhaps the best means of ascertaining the precise value of works of this kind was the amount which a tenant would give for them, so that he could work them at a fair profit. The usual per centage was 12½; but if 15 per cent. were taken off, it would bring the total to more than the amount at which the company had been rated by the present overseers. The learned counsel then adverted to the subject of rating, and said that the principle upon which a rate was made had been laid down by Lord Denman in the case of the Cambridge Gas Company. In that case his lordship held that the sum which the whole of the work would let for to a tenant is a proper foundation for a rate; and that being the last decision upon the subject, it would lead their worships to form a judgment on the present case. After allowing 15 per cent. for the tenant's profits, which was a reasonable per centage to allow, the remainder ought to be the sum at which they should be assessed. Inasmuch, therefore, as the income of the company had increased gradually since it was established, it was only reasonable that their rates should be increased in a proportionate degree. Mr. Foster then called

Mr. *John Prest*, the assistant-overseer of Wakefield, who produced his rate-book and stated that the present assessment was made on the 21st of June last, and was signed by Mr. Tew and Mr. Hepworth, the other presiding magistrate. He (Mr. Prest) affixed notices of the rate upon the doors of the churches and chapels of the town.

Cross-examined by Mr. Blanshard: For the sake of convenience the rate-book is divided into three portions, and bound together when the rate has been collected. The first division is for the Kirkgate district, the second Westgate, and the third Northgate. The allowance is in the Northgate division. The assessment of the company is in the Kirkgate division.

Re-examined by Mr. Foster: The number of assessments follow each other through the three divisions in consecutive order.

Mr. Blanshard said that as it appeared that the assessment for the company was in a book which did not contain a legal allowance of the rate, the rate was consequently bad; but the court overruled this objection. Another objection was, that under the second section of the Parochial Assessment Act, it was declared that the rate should be made out in the form stipulated by the Act, and the columns of the rate-book filled in with the gross estimated rental, yet that form of the statute had not been adhered to, and the column in which the rental ought to have appeared was only a blank. Under these circumstances he contended that the rate was bad.

After some discussion, Mr. Foster said there were a great many details into which it would be necessary to enter before the case could be heard, and as these would take up a great deal of time, it might be advisable to refer the case. As his clients wished to prevent a recurrence of proceedings of a similar nature, they desired that the principle should be decided upon which rates should be laid.

Mr. Blanshard said that in referring cases, the invariable rule at the West Riding Sessions was to bring the subject before a professional arbitrator, and to invest him with all the power possessed by the Quarter Sessions to decide the law and the question of costs. He agreed to the proposition, and that Mr. Pickering should be the referee.

Mr. Foster said he thought that Mr. Pickering should also have the power to refer the case to the Court of Queen's Bench, if he found any difficulty in deciding upon the principles of the case.

The Chairman said he would suggest that they should abide by Mr. Pickering's decision.

Finally, it was decided that Mr. Pickering should have power to award costs, and, if necessary, to state a case for the Court of Queen's Bench, and the proceedings terminated.

IN THE ARBITRATION OF THE GREAT CENTRAL GAS CONSUMERS' COMPANY AND MR. ALEXANDER ANGUS CROLL.

(*Continued from page 590.*)

Seventeenth Day.—Thursday, Dec. 3.

Mr. Lloyd said he had had a statement prepared by Mr. Wild on the reports of Dr. Leeson which it would be convenient to have put in, as it showed the amount he made in respect to the illuminating power. He (Mr. Lloyd) had hoped that the attendance of Dr. Leeson might have been dispensed with, and his reports taken as, in themselves, sufficient evidence of the facts stated in them, he being the duly-appointed referee; but as the other side were not willing to adopt that course, Dr. Leeson had been sent for from the Isle of Wight.

After some conversation on the point,

The Umpire requested that the authority under which Dr. Leeson was appointed referee should be put in.

Mr. *G. J. Parkinson*, examined by Mr. Lloyd.

I am from the firm of W. Parkinson and Co., meter makers, but am not a member of that firm. About the 20th of July last I examined the station-meter of Mr. Croll at the Great Central works. Mr. Pontifex was with me at the time. There are two station-meters there, and I looked at both. One was in action—the other was not; and I examined the former so far as I could without taking it to pieces. By looking at the gauge I ascertained that the water-line was a little too high. The top of the gauge is connected with the inlet-pipe so as to bring the pressure upon it and show the working-level of the water when it is at work. The height of the water above the line was from 6-10ths to 3-4ths of an inch, the effect of which would be to cause the meter to register about 1 per cent. too fast. I observed the overflow-pipe—it was not in action; the supply of water was not turned on, and the overflow-pipe was closed by means of a stop-cock that had been attached to it. With that stop-cock upon it, it was possible at any time to prevent the overflow-pipe from acting. The object of the overflow-pipe is to prevent the water rising above the true level. Our firm made that meter, but the stop-cock was not on the overflow-pipe originally; it has been added since.

Cross-examined by Mr. Archibald: I do not know when the stop-cock was added. I looked at the other meter, which was not in action; and, as well as I recollect, it was in about the same condition, but I did not take so much notice of that as I did of the one in action. I feel quite certain that the water was over, and not under, the line. I did not put the meter out of action before I made the observations. I have been in the habit of taking the water-line from the gauge at the station-meter. I have been employed in manufacturing meters for eleven years. The taps connected with the gauge worked rather stiff, I thought. In the case of a meter with an overflow-pipe, it would not be necessary to stop it in order to take an observation correctly, because we get the stand-pipe that was in the overflow-box to the proper level of the water when the meter is at work. I am aware that a certain amount of motive power would be necessary in order to move the meter, but that would not vary according to the quantity registered unless there were no overflow-pipe. The object of the overflow-pipe is to keep the water at its proper measuring level, and it is not at all dependent upon the degree of pressure.

By Mr. Barlow: I have seen meters of this description driven at the rate of 100 revolutions an hour, with as little as one-tenth of an inch pressure, when the meter is in good order.

By Mr. Lloyd: The capacity of the drum of one of these meters is 227 feet, and the other 229. There was an oscillation in the gauge. The height I have given is the medium point. We do not consider it necessary when there is an overflow-pipe to stop the meter altogether in order to get a correct observation.

Mr. Barlow: But in this case you say the overflow-pipe was closed?

Witness: It was stopped up; but it was not necessary to stop the meter in order to examine it, because the inlet-pipe being brought on to the top of the gauge, the height of the water on the measuring part of the drum is shown.

By the Umpire: In making our station-meters on the old plan, without an overflow-box, we mark them with a water-line at the dead level. We allow the water to come to one general level; and it is requisite to turn off the gas to allow it to be free, so that the water may come to the level, in order to see whether the line is correct or not. But in the case of a meter with an overflow-pipe, the water-line is adjusted to the working level of the meter; and so long as the water is kept gently overflowing at the pipe, the measuring height at that part of the drum would always keep its level.

By Mr. Lloyd: That is, only so long as the water-pipe is overflowing.

Mr. Barlow: What distinction do you draw between the true water-line and the working water-line?

Witness: We mark it by experiment.

By Mr. Archibald: I have seen meters working to the full quantity at one-tenth pressure. Supposing the meter is properly supplied with water, the varying of the pressure from one-tenth to an inch and a half would not cause the water-line to vary. If the inside of the meter were examined, we should be able to see how high the water had been in the tank; but I have every confidence in our measuring-gauge, if kept in good condition. I do not think the examination of the inside of the meter would have been so satisfactory as the observations taken from the gauge. There would be marks on the inside of the meter, but they would vary as the friction of the meter increases and decreases, and according to the size of the tank.

By Mr. Barlow: The gauge will clearly indicate the water-line even if the overflow-pipe is stopped up, because the top of the gauge is connected with the meter, and the pressure comes upon that. What we call the true water-line is the water-line when there is no pressure upon the inlet or outlet when we put in the pipe. The working-line is a little below the true water-line. Supposing, from any derangement of the meter, the friction, instead of being one-tenth should be five, and the overflow be closed, the effect would be to raise the water, and to make the meter register faster.

By Mr. May: Supposing a part of the meter to be transparent, and you could look inside and see the drum, you would find as the pressures have varied, marks left on the inside of the tank, and a sort of zone through which the water has vibrated. The gauge shows the height of the water within the meter precisely on the same principle that the height of the water in a locomotive boiler is found. The line of water in the gauge is precisely the line of water within the measuring part of the meter.

Mr. Archibald: It would be so supposing the pressure was equal inside and out.

Mr. May: No matter what the pressure is inside.

Mr. *Croll* recalled, and examined by Mr. Archibald.

Mr. Archibald: Will you tell us, Mr. Croll, how this water-gauge is adjusted?

Mr. *Croll:* The gauge passes through the case of the meter, and is brought in contact with the water inside the meter. The upper part of the gauge is connected by a tube with the outlet of the meter, and when the meter is at work, the water-level varies from time to time with the quantity of gas that is being passed by the meter.

By Mr. Barlow: The friction varies, and the water outside varies accordingly. The last time I tried the friction was when it was travelling at the rate of 100 revolutions an hour, and measuring about 30,000 feet per hour; it was then 1¼ inch.

By Mr. May: The friction of the meter varies according to the quantity of gas passing through it. There was some rubbing inside the meter at the time I tried it, when it was passing 30,000 feet. I do not remember whether it was rectified or not. The difference of the pressure between the inlet and outlet of the meter was 1¼ inch; so that if, as Mr. Parkinson has said, that meter was made with the water-line outside a tenth higher than the

measuring-line inside—and if, instead of a tenth, it required 1¼ inch—then, if the water was kept at the true water-line, the water-line at the measuring part of the chamber would be 1 4-10ths of an inch below what it ought to be, and consequently registering less by about 1½ to 2 per cent. Then I have repeatedly found stop-cocks in connexion with the tubes and the top of the gauge in a leaky state, and that will throw the water up beyond the water-line outside, not indicating what it was inside at all.

Mr. MAY: I do not think the leakage of the cocks would affect it, unless the leakage was a very large proportion of the whole area of the cock?

Witness: It does not affect it.

Mr. *Parkinson:* There was not anything to show how long this state of things had existed.

By Mr. ARCHIBALD: There is no true way of ascertaining the water-level, except by shutting the inlet and the outlet to bring the meter to a standstill, and then you can ascertain what the true water-level is, and not otherwise.

Mr. BARLOW: I quite agree with Mr. Croll in that.

Mr. *Croll:* There is no doubt of it at all.

The UMPIRE: I have asked Mr. Parkinson if there is anything to indicate how long that state of things existed, and he says there is nothing at all.

Witness: The true mode of ascertaining what the water has generally been at is to open the meter, as you have there the water-mark as clearly indicated as any water-mark you ever saw on paper or anything else. Then, the true way of ascertaining what really is the measuring power is to look inside the drum of the meter, where you get another water-mark.

Mr. MAY: The whole of the drum is immersed and revolving?

Witness: Yes; but you have a non-registering circle, and you can ascertain the water-mark by looking inside.

The UMPIRE: Have you anything to say to that, Mr. Parkinson?

Mr. *Parkinson:* As long as the meter is at work, the whole of the drum is immersed—is it not so?

Mr. *Croll:* The measuring chamber is below the water; but then it forms a circle at both ends of the meter.

Mr. *Parkinson:* You are mistaken with reference to the water-line registering from outside, because the object of that register is to compensate for the difference of friction.

Mr. MAY: I think, Mr. Barlow, it comes to this: that you and I will have to go and examine it.

Mr. BARLOW: I quite understand the description of it; the overflow-pipe being stopped entirely changes the whole conditions of the experiment.

Mr. MAY: Precisely.

Mr. *Parkinson:* Still it does not prevent the gauge from showing what the working level of the meter is.

Mr. BARLOW: It does not seem that you took any means to ascertain what the friction was on this particular day, the 20th of July.

Mr. *Parkinson:* Mr. Croll states that the gauge is connected with the outlet; our rule is to connect it with the inlet. I quite see the thing in my own mind as distinctly before me now as I can see my right hand.

Mr. *Croll:* Will you draw a sketch of it?

Mr. Parkinson drew a sketch, and explained it to the arbitrators.

Examination of Mr. *Parkinson* resumed.

By Mr. MAY: The top of that gauge is connected with the inlet. We have the pressure of gas on the surface of the meter within the meter as that of the outlet; the pressure on the surface of the water in the gauge as that of the inlet: therefore the difference of these two levels, if you put two gauges—the one communicating the pressure of the inlet, and the other communicating the pressure of the outlet—the difference of those two gauges would exactly measure the friction of the meter.

Mr. MAY: That, I believe, is exactly the state of things.

Witness: Yes; and this being the working water-line of the meter, and the pressure being brought on, this shows you the height of water in the measuring part of the drum. Now, when that friction increases, the difference between the inward and the outward pressure is greater; the water directly gets below that. At the same time it gets low in the measuring portion of the drum, it gets lower there. The water we are supplying to the meter makes up that deficiency; consequently, when this apparatus is properly at work the meter registers correctly, whatever be the difference of pressure, the overflow-pipe being open; but that pipe being closed, of course this shows the level at which it was working.

Mr. CROLL: This is different to what I believe it is.

Witness: Are you certain that it is connected with the outlet?

Mr. CROLL: That is my impression.

Witness: I think not. If I had £500,000 I would risk it to a penny upon it.

Mr. CROLL: Supposing that were so, this would indicate the height of the water outside of that case, that is, outside of the measuring chamber, between the case and the measuring chamber.

Witness: No, in the measuring chamber, because it is the inlet pressure.

Mr. CROLL: The connexion is in the way I described.

Mr. BARLOW: If anything turns on the point, Mr. May and I must go and see it.

Mr. ARCHIBALD: I do not know what the effect of this evidence is.

Mr. LLOYD: It is matter for me hereafter.

Witness: I unscrewed the pipe myself to see whether the gas was coming freely through it, and I found it was.

Mr. *Croll* recalled, and examined by Mr. LLOYD.

I do not know how long that stop-cock has been upon the overflow-pipe, nor for what purpose it was put there. I have repeatedly examined the meters for the purpose of ascertaining whether they were registering truly or not, and I do not remember that there is a stop-cock at all. I will not undertake to say that the water has not frequently been as much as an inch and a half above the water-line. I never knew it to be two inches above in my life. I will undertake to say that I have repeatedly seen it below the water-line, and that I have known the gas pass from the inlet to the outlet in consequence of having the by-pass unsealed, and a large quantity of gas has been unregistered. I remember on one occasion, when the water was altogether drawn out of the meters for the purpose of cleaning them out, the water-pipe which supplied the meter was allowed to remain until it got up to such a point that the meter was stopped. That is the only time that I remember it to have been so high as to be above the glass portion of the gauge. I state that positively, and also that, to my knowledge, it has not been frequently an inch above the line. I do not remember to have seen a stop-cock when making observations at the meter. On those occasions the overflow-pipe was in action. I do not remember that the stop-cock was put there by my directions. I will not undertake to say whether it was or not, because I do not recollect. I cannot say more than that I do not remember giving any directions about it. Mr. Still or the manager would venture to put on a stop-cock without my knowledge. I do not remember to have heard from Mr. Still that he had done it, or that it had been done.

Mr. MAY requested that the position of the stop-cock might be explained on the drawing. Mr. Parkinson having pointed it out, the examination of Mr. Croll was continued.

Witness: I now remember having seen it, but I cannot tell when it was put on, or whether it was there at the commencement. When I saw it there I did not make any remark to any one or inquire whether it had been used or not. It did not strike me as an extraordinary thing.

Mr. LLOYD: Supposing the stop-cock to be used on the overflow-pipe, would not that derange altogether the effective action of the register of the meter?

Witness: There must be some reason for it, but I do not remember what it was. I was less careful about the meters registering accurately than I would have been had I had any thought or expectation of this investigation; and I feel as confident as I can feel upon any subject, that if the true register had been obtained, that a much larger quantity of gas would have been indicated. That I say most positively and most unhesitatingly, and I mean to say if you examine and open the meters, you will see the water-line marked on the inside, and you will be able to judge whether I am right or wrong in the statement I have made. I looked upon it as being measured for the purpose of ascertaining what we were doing in reference to the produce of a ton of coal, and nothing more. I did not look upon it as material for any other purpose. I do not remember at all whether, before the stop-cock was put on the overflow-pipe, there was or was not a wooden plug occasionally used to stop the overflow. I will undertake to say that I never saw or heard of it, and, as far as I know, it was not the case. There was no object in showing that a greater relative quantity of gas was produced per ton of coal than was the fact. I cannot say how often in a year I examined the meters for the purpose of ascertaining their correctness. When I was down at the works, I looked round generally. On several occasions we found the produce of gas at the meter exceedingly small, and at the gas-holder greatly above the average, which arose from the hydraulic pass being unsealed. I cannot recollect any instance in which the water was beyond, except the one which I have stated.

Mr. PARKINSON made some remarks to show that the gauge was a correct indicator of the working of the meter.

Mr. *James Wild* recalled, and examined by Mr. LLOYD.

I have prepared a statement from the reports of Dr. Leeson, showing the average illuminating power. The principle upon which I have made that account is this:—I have taken the average of the month, and the average afterwards for the year, and deducted from it the standard of 9½ candles of 140 grains: the difference I call the excess. I calculate on the entire quantity of gas shown by the consumer's meter at ½d. per candle per 1000 feet.

The following is a copy of the account handed in by witness:—

Statement of Illuminating Power as per Dr. Leeson's Results, with the Value of its Excess above the Contract Standard of 9½ Candles of 140 Grains (Sperm), at ½d. per Candle per 1000 Feet on the entire Consumption.

Date.	Gas Consumed.	Luminosity in Candles consuming 140 grs. per Hour.	Excess.	At per 1000.	Amount.
Nine months to Christmas, 1852	131,554,000	11·85	2·35	½d.	£ 644 1 3
Year 1853	226,200,000	11·75	2·23	,,	1050 17 9
,, 1854	236,563,400	12·02	2·52	,,	1241 19 1
,, 1855	248,993,100	11·20	1·70	,,	881 17 0
,, 1856	270,235,000	11·00	2·10	,,	1182 6 6
Six months to Midsummer, 1857	146,588,000	11·25	1·75	,,	534 8 8
					£5535 9 3
If the arbitrators should be of opinion that, according to the construction of the contract, 25 per cent. is to be added, then the result will be an addition of one-fourth, viz.					1383 17 4
Making a total of					£6919 6 7

Mr. ARCHIBALD: You had better make this table correct. In one respect it does not go back to the beginning of 1852, nor does it go up to July, 1857.

Witness: The reason why it does not commence from January, 1852, and go down to July, 1857, is this:—On reference to the contract, it will be found that the first three months are only to be paid for on the company's paying a back dividend of 2½ per cent. up to that time; and, with reference to its extending to the 25th of July, 1857, I have understood that the consumption of gas which Mr. Croll charged to the company for the month ending the 25th of July is a matter yet to be settled. I have not understood from the directors what is to be done about that.

The UMPIRE requested that Mr. Croll's construction as to the time when it commenced and terminated might be put on the other side of the paper.

Mr. LLOYD: Of course it will be done without prejudice; we do not bind you to it. It is no admission on your part of the principle of our calculation at all.

The following note was thereupon prepared by Mr. Rait:—

Without admitting the correctness of the illuminating power as indicated by this table, Mr. Croll contends that he should be allowed for the increased illuminating power from January 1, 1852, to the 25th day of July, 1857, whereas the present statement (were it correct in other respects) only allows for extra illuminating power between the 1st of April, 1852, and the 24th day of June, 1857.

(Signed) GEORGE RAIT, Jun.

Cross-examined by Mr. ARCHIBALD: I have not verified the list of temporary connexions, as I left here on the last occasion under the impression that the arbitrators had disposed of that part of the case. The rental I have returned to Mr. Croll has been meter rental, or rental from public lights. I do not recollect that I have informed Mr. Croll that any portion of it was computation or estimate; but it is exceedingly possible that I have mentioned this where we have had it disputed.

By Mr. MAY: The returns have included whatever computations were made, and my impression is that the amount of gas supplied without registration, either from the fact of stopped meters, or temporary connexions, does not amount to anything to be called a proportion of the whole. I cannot give the per centage; in each case the inspector has to estimate what has been burnt.

Mr. LLOYD: According to the evidence, I think there has been a desire to charge the consumer fully as much as he had.

Mr. BARLOW: With regard to this item, Mr. Croll gives credit in his account for £5019. Those payments evidently may be conceived to be in settlement of account. But Mr. Archibald, on the other side, says that they are payments on account. Perhaps Mr. Wild will let us have a statement showing what they are.

Witness agreed to do so.

Mr. ARCHIBALD: I don't understand Mr. Wild to say that those payments have been appropriated to any particular account.

Witness: Mr. Croll has received from us payment at the end of every month for the gas supplied during the month. We have from time to time made up the account to see that he has not been in excess—that is, comparing one month with another—and occasionally Mr. Rait and I have met and agreed upon an amount as representing the account.

By Mr. BARLOW: The payments have been round sums, estimated by Mr. Croll for so many million feet of gas, and have been made in cash and bills.

By the UMPIRE: The payments to Mr. Croll were made monthly, and the accounts were adjusted quarterly. I do not remember any occasion on which it was found that he had drawn less than he was entitled to. I believe he was always in advance of the gas supplied, but every quarter the account was adjusted, and the amount overdrawn deducted.

By Mr. BARLOW: There was a balance of account struck between the parties, agreed to and signed in July, 1854.

The UMPIRE: That is very important.

Mr. BARLOW: It is something as a starting point.

Mr. MAY: How has this sum of £5019 grown up?

Witness: It is the balance of the gas account. Mr. Croll does not give us credit from Midsummer, 1856, to Midsummer, 1857, for the public lamps. He takes them entirely out of charge, and we have paid him the ordinary charge as in previous years.

Mr. BARLOW: That is 35,000,000 feet?

Witness: It is more than that.

Mr. LLOYD: You must remember that this is Mr. Croll's statement; and it is as clear as possible, according to that statement, that he assumes he has not been paid for the public lights in 1856 and 1857, but he knows he has been paid on account for them at our rate, and therefore he gives credit for that, which amounts to £5000.

By the UMPIRE: In my computations of the amounts to be paid by the company to Mr. Croll, this was always calculated. The returns have included the registered gas at the public lights.

By Mr. LLOYD: I have said before, and I say again, that there was no protest by Mr. Rait against being bound by these accounts until the beginning of 1856, to the best of my belief.

By the UMPIRE: That was about the time we could see there was a difference between the company and Mr. Croll. I never heard anything about unaccounted-for gas until the beginning of 1857—a short time prior to this arbitration; I should say at the beginning of 1857—and I was considerably astonished to hear that there was an impression on the part of Mr. Croll, or his secretary, that there was a quantity of gas in temporary connexions and other matters that had not been charged. I did not attach any meaning to Mr. Rait's protest in reference to the gas accounts at the time, but my impression would be this, that in a connexion that had extended over such a time, and involved so much money as between Mr. Croll and the company, there would be a probability that there would be matters to settle between them; and, under those circumstances, I could easily conceive that Mr. Rait would wish me to believe that he was not bound by those accounts. That is my impression; of course I do not know. The £5019. 3s. 2d. which Mr. Croll gives credit for in his account to the company, refers to public lights, illuminations, overdrawn, and advances on account.

Mr. LLOYD said he had now finished his case, with the exception of the examination of Dr. Leeson and the questions of the siding, and the consequential damage for not putting the works in repair.

The UMPIRE: Have you any claim for damages upon that?

Mr. LLOYD said he had, inasmuch as Mr. Croll let the works down so, that in order to maintain the necessary supply of gas for their consumers the company had been obliged to reinstate the works in such a manner, at such times, and under such circumstances, that it had occasioned a very serious difference in the outlay.

Mr. ARCHIBALD called attention to the fact that the works were given up by arrangement at an earlier period than Mr. Croll had bargained for. During the remainder of his term, had he continued in possession, he might have done the necessary repairs, and therefore he (Mr. Archibald) did not see how any question of consequential damage could arise. Let either of the estimates of the gentlemen (Messrs. Wright and Laing) who inquired into the matter be taken; one of these must represent the damage.

The UMPIRE said, undoubtedly that was the doctrine of a current lease. If the company had brought an action against Mr. Croll for damage during his term, the answer was very plain; they could only have nominal damages, because Mr. Croll would have the right to the residue of the time to put the premises in repair. Was there any clause reserving the right of the company for consequential damage?

Mr. ARCHIBALD: None whatever.

Mr. LLOYD would not anticipate the argument, but this was a totally different case. The premises were occupied by Mr. Croll for the purpose of manufacturing gas, and they were given up by him to the company on the understanding that they were immediately to go on with the manufacture and supply to the public. Mr. Croll was bound by his lease from them to keep the works in such a condition that when they came into the company's hands again the ordinary process adopted in all manufactories should be sufficient to keep them in repair.

The UMPIRE said that, with the exception of what was recited in the deed of the 25th of July, 1857, there was nothing before the arbitrators to show the terms on which the parties separated.

Mr. ARCHIBALD said he believed there was nothing, except an arrangement that Mr. Croll was to have access to the works.

The UMPIRE said, if that was in writing it ought to be before them.

Mr. ARCHIBALD thought it did not affect the question.

Mr. CROLL said the arrangement was merely for the purpose of enabling him to get rid of his stock.

Mr. LLOYD submitted that, inasmuch as the company would have been entitled at the regular termination of the lease to set up a claim for consequential damage, they were entitled to it on the surrender of the works under this agreement.

The UMPIRE suggested that Mr Laing and Mr. Wright should look over the accounts and say, supposing there was such a legal claim, what the amount should be.

Mr. LLOYD was willing to adopt that course, but

Mr. CROLL objected to Mr. Wright, on the ground that he was now the engineer of the company, and therefore bound to sustain the charges he had made.

The UMPIRE agreed that it would be better to associate some independent person with Mr. Laing for the purpose.

Mr. ARCHIBALD said the measure of damage in a case of this kind must be the amount necessary to put the premises in repair.

Mr. LLOYD said the company had been subjected to very serious loss, by reason of having to work night and day under peculiar circumstances to keep up the supply of gas; whereas, if the works had been properly maintained, the result would have been very different.

Mr. *William Scoble*, examined by Mr. ARCHIBALD.

I am now employed at the works of the Great Central as foreman of the works, under Mr. Prior, and attend here under a subpœna. I was also foreman of the works in Mr. Croll's time, from the middle of 1853 to the end of 1855. While I was employed by Mr. Croll I was in the habit of observing the station-meter every day. I have found the water below, and I have sometimes found it above the water-line, but I have always run it out myself, or I have got the valve-men to come and do it, but I generally used to do it myself; and while I was there the meter was in a proper state for accurate registration. I should say, to the best of my knowledge, while I was there we had oftener to put water in than we had to take water out. I remember several occasions on which the gas passed without registration, through the water getting into the syphon and clogging the meter. The quantity of gas which would then pass through without registration would depend upon the quantity which was being made at the time during which it continued. The diameter of that pipe is about fourteen inches, to the best of my knowledge. If the meter had had a valve, the effect would have been to blow the cups at the weakest point. During the time I was there under Mr. Croll there was no stop-cock on the overflow-pipe. It is not there now, and was not when I came back. We always worked six wet-lime purifiers and two charged with chloride of manganese—three on each side and two in the centre—eight altogether. We always kept them at work in winter, and in summer we used to throw one or two out of action to clean them out. I know the passage of the pipe from the purifier to the station-meter. The passage under the retort-house through which it passes has been hotter lately, since I went back on the 25th of July. It could not be so hot when Mr. Croll was there, because the furnaces going into the passage were very seldom alight, and there were only three sets of retorts on each side. When I went back on the 25th of July there were only three sets going into it, but since that time there have been nine sets going into the chimney, and we had to put the remaining part of the settings on the chimney; and when this was taken down and the five sets went in, those five sets were put on to this chimney here [describing], and that has increased the heat of the passage. In Mr. Croll's time we never had more than six; often in the summer time we had only three, and at times there were none at all. The heat is much greater now, because we are consuming tar, which makes a greater flame down among the retorts, and goes up the chimney. We have been doing that for about ten weeks. I remember Mr. Hawksley and Mr. Wright being at the works, making experiments. The retorts were all up before the experiments were made. The tar was burning at that time, and the flame coming out of the chimney from six to eight and ten feet high. There have been complaints made about it to the police very often, and they said we must put a stop to it. We have now two purifiers at work; the saturators are not at work; three have been worked since I have been there. On the 25th of July, when I went back, the whole eight were at work—the two saturators and the six wet-lime purifiers. When the experiment was made, only three wet-lime purifiers and no saturators were at work. I know the pipe conveying the gas down the hydraulic-main to the purifier; it was very seldom used. It was shut on the 25th of July, when I went back; on the 28th of July I opened it. When Mr. Croll left, the purifiers were in repair. There might have been a valve or two that wanted looking at and cleaning, and which might have been done in one or two days.

By the UMPIRE: I should say that every purifier could have been put in order and cleaned out and fit for action again in six weeks, easily. I have cleaned a vessel out there myself, and taken the plate out and put it in again in two hours, with men to do it.

By Mr. ARCHIBALD: In Mr. Croll's time one of the exhausters broke down; we put all the hands upon it that we could, shut it off, and did it at once in twelve hours; and that might have been done after July 25. I think that the repairs might have been done in half the time. There was nothing to have prevented the works being repaired thoroughly by the end of September. There were some settings that fell down from the excess of weight that was on the top. I had objected to it. I went into Mr. Giesber's office, to ask him to allow the labourers to pull it down. There was about 150 cwt. of pipe on the top. It was arched, and there was a length of hydraulic pipe, and the men began to pull the arches down with all the weight lying there. I asked him to allow me and the men to take it down. He said, "Never mind, Scoble, it has nothing to do with us; we have got it by contract, and they must do it themselves." It fell, and my son got buried, with about four tons on the top of him at least. We have six old settings at work, which Mr. Croll left. I have tried experiments on them and the new ones, and the result was, that Mr. Croll's settings of thirteen retorts—seven iron ones below, and six clay ones on the top—carbonized 2 tons 1 cwt. more than the new settings in the twenty-four hours, and the fuel account was 24 bushels difference.

Mr. BARLOW: In favour of which?

Witness: In favour of Mr. Croll's; one burnt 100 bushels in twenty-four hours, and the other 124. The settings Mr. Wright had put in burnt 124, and Mr. Croll's burnt 100.

Cross-examined by Mr. LLOYD: I was told by Mr. Giesbers, the manager for Messrs. Priors, to do this by way of an experiment. He is a gentleman not much accustomed to gas-works; he is from an engineer's shop. I gave the information I have been asked about to-day to Mr. Bower. I should not have come here without a subpœna. I am neither an engineer or contractor, but I understand setting retorts, either iron or clay, and have been at it twenty-seven years, and have built retorts. The setting of retorts upon which the experiment was made was erected under my direction. While I was employed by Mr. Croll, I kept the register of the station-meters in the carbonizing-book, and made marginal notes in those books when anything was wrong with the meters. I think it very likely that there frequently occurs the remark that the meter did not register, and was entirely out of order. I made no note when there was too much or too little water in the meter. I know when there is too much water in the meter by the gauge at the back. There was an overflow-pipe in action. I never saw a wooden plug in the pipe, and there was none up to the time I left in 1855. There was a bent pipe there, and that was made of lead, so that there was no occasion for any cock. If it was wanted, all you had to do was to bend that a little more like a syphon, so that there was no occasion for a plug; but I never saw it bent or a cock there. I think they were negligent in making the repairs, and Mr. Wright was aware they were not going on so fast. He came there once or twice, and found that the workmen were all knocked off and sent away. They were employed by Messrs. Prior, the contractors. Since the 25th of July we have worked six of the old settings. They were in good working condition, or else they would not have worked

up to this time. They could not make gas without them. I advised that sixteen out of the twenty-two sets should be actually removed to go through the winter. The purifiers were in good order on the 25th of July. I cannot say exactly how many valves could be closed, but I will undertake to say there were more than a dozen, or else you could not shut off one side from the other.

Re-examined by Mr. ARCHIBALD: From the retorts that were coming in and those that were there, I believe all could have been made ready for the winter by the 29th of September, because the iron retorts are there now.

Mr. BARLOW: This witness is the person who was deputed by the company to accompany the three arbitrators over the premises, and I think it is unnecessary to go into matters respecting which they are already informed.

Mr. ARCHIBALD: You never saw any wooden plug in the overflow-pipe when you were there, nor the pipe bent?

Witness: No, not to the best of my knowledge.

Robert Jones, Esq., recalled, and examined by Mr. ARCHIBALD.

On the 23rd of November I visited the works of the Great Central Company for the purpose of taking the pressures and the temperatures, but we did not take the pressures because there had been no means afforded for doing so. The pipes had not been drilled or tapped, and there was no means to enable me to take the pressures. I found men there excavating the ground. I was there from one to three o'clock, and did nothing at all. I examined the retort-house, and found a large pipe leading down below the stage—a 14-inch gas-pipe—by means of which the gas would be conveyed to the condensers. I found that open, and a system of pipes above that leading in various directions to the large tar cisterns that are provided and prepared there for receiving the tar. I found that the gas might be conveyed in almost any direction from the retorts to these cisterns. I then asked a question as to whether the 14-inch pipe descending below the stage was to act, and I was told it was so; but it might be thrown out of action. I had that pipe closed, and the pipe above opened, and the gas passed freely to the condensers in other directions, without going through this pipe at all. The gas is now passing through the pipe—at least, I found it passing. I had the valve closed to see whether the gas would pass through in different directions, and so concentrate it in the condensers. I found that it would do so; and the intention was to convey the tar into large cisterns that were erected outside the house, for the purpose of putting carts and that sort of thing under, to be loaded with tar. Having satisfied myself of that, I examined the retort-ovens; and I may say, that, as compared with what I had seen previously at those works, the whole of the circumstances were changed. I found on the right side of this pipe a bench of retorts. The products of combustion from three were conveyed into a flue that ran beneath in the passage, and now there are six benches of retorts, and the whole of the products of combustion of the six is conveyed into the flue, and there are only three on the opposite side. I find tar has been conveyed through the top oven into the bottom oven, to increase the temperature of the retorts, and the products of this tar would increase the temperature, as compared with formerly. It is all owing to this flue; from my own opinion of the case, there is something like 75 per cent. more heat from those products now passing the flue than formerly under the system worked by Mr. Croll. The retorts below the stage were iron in Mr. Croll's time; they are now clay, with the exception of one bench, and would require a greater amount of heat to work them, and I suppose that was the object of burning tar. I was in the habit of visiting the works frequently in Mr. Croll's time. I found that there was a much greater heat in the passage beneath the retort-house now than formerly. I have passed through those passages to go to the engine-house, and on former occasions there has been a great draught of cold air. On this occasion I stood in the passage without any difficulty. There was not now annoyance from excess of heat, but formerly it was very cold indeed

By Mr. BARLOW: When we went into the yard on our way from the engine-house, I saw a flame, I should say six or seven feet high, above the chimney.

By Mr. ARCHIBALD; That was between one and three o'clock. There were only three wet-lime purifiers at work. The connexion had been made so as to allow or cut off entirely three wet-lime purifiers, and two saturators. There were only three wet-lime purifiers at work at the time, and it had been so for five or six weeks. I have been there at all seasons of the year in Mr. Croll's time, and when all would be required, I have found all in use. I found on this occasion that I am now speaking of about the gas entering the purifier at 71°, and leaving at 60·5°; that was with only a cooling surface of three purifiers. Had the whole eight been at work it would have left the purifier at the temperature of the air, which is in accordance with the evidence I gave before. I have worked wet-lime purification at Chester and elsewhere, and I know practically that it has a cooling tendency on gas.

By Mr. BARLOW: In the six wet-lime purifiers and the two saturators the number of superficial feet is about 3731.

By Mr. ARCHIBALD: They are all of the same size—15 feet in diameter—and the difference between using three and eight purifiers would be as 3731 to 1339, or about 37½ per cent. of the whole. I am acquainted with the Great Central works, and I should say that the time necessary to put them into proper repair would depend entirely upon the purifiers. The last time I saw the purifiers was in the spring of the year. I passed through and round them, and they appeared to work well, and did not appear to me to want repairing. I observed the exhauster: it was working at a speed of 73 strokes a minute, and appeared to have been passing the gas over again; so that it was taking more than it was calculated, and the friction would have a tendency to raise the temperature of the gas. It was working at a greater speed than was proper. I examined the purifying and engine houses, and found the steam leaking from almost every joint of the steam-engine. It appeared to be in a bad condition. They were making repairs, and it may have got to that position by other pressing matters. It was in worse repair than I ever saw it before, and the boiler appeared to me to be in a dangerous state. They were all busy pulling down and building up, and I think, fairly, I ought to attribute something to that. They have not been able to pay the same attention to those matters as formerly; they were certainly in a very bad state of repair. I took the temperature of the meters. I found the temperature at the inlet of one of the meters 76°, and the outlet 66°; the inlet on the second meters 71°, and the outlet 64°: the mean of both inlets, 73·5°, and the outlets 65°. I found the temperature of the gas at the inlet of the purifier 71°, and the outlet 60·5°.

By Mr. BARLOW: The temperature of the air was 57°, and the average temperature of the condensers was 53½°.

By Mr. ARCHIBALD: My opinion is, that supposing the whole of the purifiers were at work, the gas at the meter would not be registered above the temperature of the air. The temperature of the gas at the inlet of the meter at the Commercial Gas-Works on the same day was 71°.

Cross-examined by Mr. LLOYD: It was near two o'clock when we commenced taking the temperature. We took the temperature of the air first, the meter next, the purifier, and then the condenser; we were about half an hour doing the whole. We did not ascertain the mean temperature of the air that day. I think the difference of temperature between three purifiers and eight would be considerable. I attribute that to the cooling surface of the iron, the pipes, and the connectors. The application of the speed of the exhauster was to raise the temperature, but I would rather have satisfied myself upon facts; that is, taking the temperature of the inlet and the outlet, and getting it on entering the purifier; but there were no means provided of getting the temperature of the inlet of the exhauster. I think there is 75 per cent. of increased matter in combustion now at the point where the pipe passes through the retort-house, and the increase of heat would be a certain proportion to that. I saw the flame passing through the chimney. There is a great deal of heat passes through there; formerly that was not the case. I have gone very carefully over the works on several occasions. I was very frequently in them; twice a month generally, sometimes four times a month; and I should go to them as a man with something like twenty-three or twenty-four years' experience, which I have had. I should form an opinion that way. I did not go into details to ascertain the minutiæ of them, but generally in passing through them, and I do not imagine I should be far wrong. I did not remain until the time when the pressure would be the greatest, six o'clock.

Re-examined by Mr. ARCHIBALD: Mr. Anderson went round with me, and checked the temperatures. The average price of coke at the Commercial Company during the last six months has been 8s. 5d. I do not know what the price of sulphate of ammonia has been. I have not made any.

Mr. *Parkinson* said he had been down to the works to look at the meter since giving his evidence, and found he was quite right in what he had stated. The water-line register of both meters was connected with the inlet-pipe. In fact, his firm always made them in that way.

Mr. *Spice*, examined by Mr. ARCHIBALD, stated that he accompanied Mr. Jones on the 23rd to the Great Central works to take the temperature of the gas. He took notes at the time, and agreed with Mr. Jones in the evidence he had given.

Mr. *John Hunt* recalled, and examined by Mr. ARCHIBALD.

I was formerly an inspector of the Great Central Company, and about three years ago I remember soliciting Mr. Feist, a provision merchant of Moorfields, for his custom. I asked him to allow me to put my meter by the side of that of the Chartered Company. When I got permission to put up the meter at Feist's I mentioned it to Mr. Massey, and he told me to go and get it fixed with the inspector of the district. We said to Mr. Massey, we promised Mr. Feist that the consumption should be less than the Chartered. I was ordered to go and attend to the fixing of the meter, although it was not in my district. We fixed the meter a little on one side; that is what we call tilting it, the effect of which would be that the consumption would be less. After it was done, both Brittain and I told Mr. Massey that we had fixed the meter, and placed it as we thought the probable consumption would be less; and he laughed and rubbed his hands, and said, "That is quite right." This happened in Mr. Massey's office. I had received instructions from Mr. Pontifex to see to the lights. If there were any complaints I was to attend to them, and occasionally we were obliged to make temporary connexions, the meters being out of order. The general instructions were, that temporary connexions were to be made when they were required.

By the UMPIRE: They were generally reported to him the next day, when he came to the office. When he left the office in the afternoon he left me in charge, and I made those reports to him when he came to the office the next day. I made them without communicating with him.

By Mr. LLOYD: I did not say exactly we had tilted the meter, but had placed it so that the consumption would be less. I do not know how long it remained tilted. It may be so now, for anything I know. I saw it three weeks afterwards; it was in the same state. It was in Brittain's district. I do not say that Mr. Massey told me to tilt that meter, but I told him that we had tilted it. That is the only instance in which I tilted a meter. I am not now in the service of the company. When I was with them I was in the habit of giving temporary connexions. I have given many. The signature to this letter [handed to him] is in my handwriting, but not the letter. It is not true that all the temporary connexions made by my knowledge and under my direction have been duly notified, with full particulars, in the district service-book. I signed this letter, certainly; but I do not believe they were, for all that. I was not on my oath when I signed that, and I am now.

At the request of Mr. MAY, the letter was read as follows:—

Sir,—All temporary connexions made with my knowledge or under my direction have been duly notified, with full particulars, in the district service-book of each division of which I have been inspector whilst in the service of the company.

I am, Sir, yours obediently,

(Signed) J. HUNT.

Re-examined by Mr. ARCHIBALD: That letter is in Mr. Massey's handwriting, and the only portion of it that is mine is the signature "J. Hunt." It was produced to me about a day or two before I left the company in Mr. Massey's office. He asked me if I would sign it; I read it over, and said I would. I have not seen it since that time.

The UMPIRE reprimanded the witness for the course he had thus taken, and indignantly ordered him to leave the room.

Mr. ARCHIBALD said that this was all the evidence he had at present. There were, however, some questions as to repairs, upon which probably, when the matter came to be discussed, it would be necessary to call some witnesses, because the reference to the engineers did not include as an element the original construction of the premises. There was also another point upon which Mr. Pearson had given evidence, respecting which it might be necessary to ask Mr. Croll a question.

Mr. LLOYD objected to Mr. Croll being recalled, except for the purpose of being re-examined upon some matter inadvertently omitted.

Mr. CROLL said he wished to show the correctness of his calculations when before Parliament as regarded the works and the cost of manufacturing gas, as also how his loss had arisen from the changed circumstances, and how the alteration from 2s. to 1s. 4½d. had been brought about.

Mr. LLOYD: You do not mean to compare those two. The 2s. did not represent the same thing?

Mr. CROLL: Yes, the same thing. I wish also to give the reason why I was less careful in the experiments made on the illuminating power, in consequence of what Mr. Dakin has said, not only to me privately, but publicly.

The UMPIRE: Mr. Croll ought really to consider what he is going to do about this matter. It is opening up another reference.

Mr. ARCHIBALD: Reserving my right to call Mr. Croll if it should appear material or admissible, we will look over the matter and endeavour as far as possible not to go into anything that is unnecessary.

The UMPIRE: If Mr. Croll considers that Mr. Pearson took advantage of the position he was enabled to assume to say something more than he could agree to, we ought to hear him, but upon express condition that it is only to be two or three sentences—merely a statement of his opinion; and this is only admitted for the purpose of clearing his reputation as an engineer and a gentleman.

Mr. CROLL: My reputation, both as an engineer and a gentleman, is as valuable to me as Mr. Pearson's is to him; and, as he was allowed the opportunity of making a speech here, I should not like to have the arbitration closed before I have the opportunity of making a speech that shall not occupy five minutes.

EIGHTEENTH DAY.—MONDAY, DEC. 14

At this sitting no progress was made in the case, in consequence of the absence through indisposition of Mr. Archibald.

The UMPIRE inquired whether, as it was in the submission, any question was to be raised before the arbitrators about royalties for the use of Mr. Croll's patents?

Mr. DAVIDSON said he believed not. It was only in case the company used Mr. Croll's patents, which they did not do. Happily they had taken down the retorts.

The UMPIRE requested that a list of all the company's claims might be given in, so as to preclude the possibility of its being afterwards asserted that there was some point not adjudicated upon. He also expressed in very strong terms the opinion of the arbitrators that the case had been most needlessly prolonged, and that no delay for the purpose of summing up by counsel ought to be permitted.

Miscellaneous News.

LONDON GAS COMPANY.

The Ordinary Half-Yearly General Meeting of the Shareholders of this Company was held at the Freemasons' Tavern on Wednesday, the 13th inst. —E. HAWKINS, jun., Esq., the governor, in the chair.

The CHAIRMAN, in opening the business of the meeting, said he had been desired by two directors, the Hon. Arthur Kinnaird and Mr. Wright, the latter of whom was on the Continent, to apologize for their absence.

The SECRETARY having read the notice convening the meeting, the CHAIRMAN submitted the directors' report and statements of accounts, which, having been previously circulated among the shareholders, were taken as read.

Your directors submit to you the balance-sheet and half-yearly account, showing the result of the manufacture and distribution of the company's gas up to the 30th day of June last. A statement of the profit and loss for the past half year is annexed to this report. It will be seen by the statement of the dividend-fund that a sum of £11,968. 6s. 6d. remains applicable to dividend. Out of that sum will be paid, on and after the 15th inst., the dividend at the rate of 6 per cent. per annum upon the first preference shares of 1849; upon the preference shares of 1840, commonly known as blue preference shares; upon the preference shares of 1842, commonly known as red preference shares; and upon the first debenture stock, created under the "London Gaslight Act, 1857;" and a dividend at the rate of 5 per cent. per annum, in accordance with the same Act, upon the second debenture stock.

The directors consider it no slight subject of congratulation, that thus, after a long period of depression—and they fear, to many of the shareholders, of considerable privation—the affairs of the company have at last been conducted to a point when the payment of dividends can with propriety and safety be resumed to every class of preference shareholders.

It will be observed that the profits are somewhat less than they were in the previous corresponding half year; but it should be recollected that this result had been foreseen by the directors, and has been mentioned in both of their last reports as likely to occur. They believe, however, that though some of the causes which have thus prejudicially affected the past half year will continue in some degree to affect the present, others, and those the more important, have altogether ceased; while, on the other hand, beneficial results may be anticipated from improvements in the purification, by which additional saleable products will be obtained,—from the gradual diminution of the waste of gas by leakage, as the number of the mains in each street, where three or four companies have formerly supplied gas, can be diminished,—from an improved contract for coal,—and from increased gas rental, which, now that the temporary disorganization occasioned by the districting arrangements has ceased, may be expected to increase in its ordinary ratio. There appears, therefore, to be every reason for looking forward to a speedy resumption of dividend, though at first it can be but small, even upon the original shares.

In stating above that some of the causes which have affected the past will continue to affect the present half year, reference was made principally to certain extraordinary repairs and alterations upon the works at Vauxhall—some now completed, others still in progress—and to the rates and taxes. This latter item has increased from £780. 5s. 11d. in the half year ending June, 1847, to £1494. 14s. 11d. in the half year ending last June, principally from the rise in the local taxation of the metropolis, of which there appears but little prospect of a speedy diminution. The extraordinary repairs and alterations have consisted in the new roofing a portion of the Vauxhall premises, the adaptation of existing plant to a more perfect system of purification, the laying a large main to improve the connexions on the works, and the entire removal and reconstruction of nearly one-fourth of the settings of retorts at Vauxhall. By far the greater part of these expenses might with propriety have been carried to account, so as to extend over several half years; but it has been thought better that they should be brought in at once as a charge upon the past and present half year, in which they have actually occurred.

In carrying out the assignment of a separate district to each company, an arrangement was made in reference to the exchange of mains, by which this company had a considerable sum to receive. On the other hand, the expenses of laying new and adjusting existing mains, shifting service-pipes, and other matters connected with effectually supplying a new district, have necessarily been very heavy. Under these circumstances, it has been thought advisable to open a new account in the books as a distinct districting account, charging the total expenses against the total receipts, thus leaving the old entries in the books undisturbed.

The directors have been most anxious that the public should feel that, so far from having cause of complaint, it has obtained its full share of the advantages resulting from districting. They have, therefore, taken effectual means to secure a regular and ample supply of gas to every locality to which the mains extend; and have felt it to be sound policy to send out the gas of improved illuminating power, though the first effect of so doing has been to increase the cost of manufacture while diminishing the quantity of gas consumed, and therefore the rental.

The shareholders will learn with satisfaction, that under the provisions of the London Gaslight Act, 1857, the directors have already purchased and cancelled preference shares and debenture stock to the amount of £2617. 7s. 6d.

Dr. PROFIT AND LOSS, HALF YEAR ENDING JUNE 30, 1858. *Cr.*

To coals	£27,277	10	8	By gas	£54,379	14	7
Lime, &c.	386	0	1	Coke and other products	14,858	18	3
Stores	1,498	11	1	Rents	567	4	2
Wages	7,873	4	11				
Wear and tear	3,015	2	11				
Royalty	402	0	0				
Meters—repairing and fixing	1,558	10	9				
Directory and auditing	530	0	0				
Salaries	1,662	0	0				
Rates and taxes	1,494	14	11				
Rents	900	2	6				
Commission	1,068	19	0				
Stationery and incidental expenses	853	5	8				
Allowances and bad debts	776	15	8				
Law expenses	500	0	0				
Depreciation	7,392	17	2				
Balance	12,616	1	8				
	£69,805	17	0		£69,805	17	0
Interest on borrowed money	£3,185	1	7	Balance brought down	£12,616	1	8
Balance	9,431	0	1				
	£12,616	1	8		£12,616	1	8

Dr. DIVIDEND-FUND. *Cr.*

To amount of first preference shares dividend, March 31, 1858	£4,124	5	0	By surplus profits, Dec. 31, 1857	£9,549	1	5
Ditto blue shares dividend	2,887	10	0	Balance as above	9,431	0	1
Balance	11,968	6	6				
	£18,980	1	6		£18,980	1	6

The CHAIRMAN: Gentlemen, in moving that the report and accounts be received and adopted, I have but very little to say. In former times I have generally had a great deal to say to you on such occasions, for we have had so many difficulties to encounter that there were always many important matters upon which it became necessary that we should consult the shareholders. Happily, we are now so much in the normal condition of a gas company, that although we have not yet been able to pay a dividend upon our original stock, our position is so good that we have little to state beyond what is contained in the report which is in your hands. That report has been made pretty full with the object of giving you as complete an idea of the general state of our affairs as possible; and, as I said before, there is but little information I can give you beyond what you have there. There are, however, one or two matters which I should like to touch upon, not for the purpose of giving additional information, but rather of enlarging upon what has been stated in the report. And the first of these is, as to the mode in which we have kept the account of our district. In these times we know how liable directors are to have their statements closely looked into; and it is really a very serious consideration with us not to put the whole or any untrue statement as to the position of affairs before the shareholders. In carrying out the districting arrangement, as we have taken a district smaller in area, though equal in point of rental to that which we gave up, the mains in the district taken to are less in quantity than in the district we have abandoned. The consequence is, that taking the strict money value of the mains, we at the present moment possess a smaller weight of iron, and therefore a smaller actual value of mains, than we did before. We have received from other companies a certain sum in consideration of giving up that weight of iron, though that weight of iron was unproductive; but the sum so received does not cover the original cost of those mains. The consequence is, that, as a strict matter of account, we have made a loss upon the amount which stands on our books; and in the hands of an accountant that loss would have been put against the profits we have made for the half year, diminishing those profits as shown to you in these accounts. We have adopted what we thought was a much more prudent and more common-sense course. The real truth is, that though by taking this district we have lost a certain portion of nominal capital, we have obtained a very much more valuable business than we had before; that is to say, supposing we were to sell our whole concern now, there is no doubt we should be able to obtain a much larger sum for it than we could formerly have done. Therefore, so far from having made a loss during the half year, we have made a really available profit; because, having now a condensed district, and a non-competing district, we are saved from all the consequences of excessive leakage, which must ensue in a district which is wide-spread, and where we had to supply gas in competition with other companies. You will see, then, that we are the gainers by the districting arrangements; but I wish to impress upon the shareholders that we are not the only gainers by it—the public are gainers as much as we. Doubtless you have often heard, as I have heard, in common conversation, complaints about "the gas monopoly;" and I am anxious that all the shareholders should be able to discuss that point, and to show that this monopoly, as it is called, is a real benefit to the public. When I have met with persons who expressed their fears on this head, I have reminded them of the great evils arising from the constant breaking up of the streets, and the consequent stoppage of the traffic. We have had a leader in the *Times* lately upon the subject, and we can easily conceive that where four companies have mains running through the same district, this breaking up of the public thoroughfares must be more than four times as frequent as where there is only one; because whenever one of those companies opens the ground for the purpose of renewing or relaying their mains, they invariably disturb the mains of the other companies, and it becomes necessary the next year for the latter to re-open the ground, and relay and set up the joints of the pipes so disturbed, thus occasioning further disturbance to the traffic. Again, we have heard complaints of the frightful smell of gas wherever the pavements are broken up; and we have been told by persons interested in sanitary affairs that some day or other it may be necessary to raise the whole of the pavement in London, to remove the

soil and to lay down fresh soil in its place. Well, now, it is impossible, where there are competing companies, to prevent leakage in the soil; but I believe with competition at an end, if we could be preserved from suffering damage arising during repairs to sewers, our leakage would be very largely diminished. I know a town where the gas-works are seven miles from the point of supply, and yet the loss from leakage is only 7 per cent.; whereas in London if we estimate the leakage at 25 per cent. it is a low estimate. This is one way in which the public are gainers by the districting arrangements, the other two are mentioned in the report. I believe that the other metropolitan gas companies are, as well as ourselves, taking a great deal of pains to give an increasingly good gas; the first effect of which has been, that as each consumer has thereby had to burn a less quantity, our rental has not increased, or rather has increased in a smaller ratio than it has hitherto done. In arranging our districts we were guided partially according to the boundaries of parishes; and it was agreed between the companies districting, that where we could respect the boundary of a parish by selling a portion of rental it should be done. We have sold rather than bought rental, and it appears at rather a diminished amount in the present accounts; but I believe in subsequent half years it will be more than made up. The next matter to which I refer is this: You have, no doubt, noticed in the papers that there has been an action brought against the London Gas Company, and you know that actions carried on as that was—the Attorney-General specially retained on the other side—are extremely expensive affairs. The expense, however, in this case does not fall wholly, or even principally, upon the London Gas Company, although their name was used. Several others—nearly the whole of the metropolitan gas companies—are using the same mode of purification that we are doing; and when, therefore, the action was brought against us, knowing their liability to similar proceedings, it was agreed between them that the expense of defending it should not be borne wholly by us, but six other companies with us. Therefore these expenses, enormously heavy as they are, are not incurred by us alone, but by seven companies—of which the London is one—in proportion to the amount of their rentals, which appeared to be the fair mode of arranging it. If any shareholder wishes for further information about this action, he will find it very fully given in the JOURNAL OF GAS LIGHTING. The statement of the case given in that journal for the 14th of September we of the London Company believe to be an extremely fair and impartial statement; but it is only right to Mr. Hills to say that he does not think so, and that in the last number of the JOURNAL he has written a letter in reply to that article. Those shareholders, therefore, who wish to have a full account of both sides of the case should procure the two numbers of the journal to which I have referred. We have mentioned at the end of our report that a certain portion of the preference shares and debenture stock of the company have been redeemed. Some of our shareholders will recollect that in the last Act of Parliament—"The London Gas-light Companies' Act, 1857"—there is a clause making it compulsory upon the directors to set aside every half year, before paying any dividend to the original shareholders, but immediately after payment of dividend to the preference shareholders, the sum of £750 towards redeeming the new stock which was created under that Act; that is to say, we are to set aside that sum of money every half year until we have redeemed somewhere about £35,000 of stock, shares or debt, but from the time that they are redeemed they are obliged to be cancelled; so that that redemption does go to the benefit of the original shareholders, because it goes to lessen the amount of dividend which, until they are redeemed, is every half year paid to that preference stock. We have this half year rather anticipated the amount which up to this time should have been set aside, by expending, in the purchase of £2617. 7s. 6d. worth of stock which came into the market, the sum of £2125. 6s. We have made thereby a very good purchase, and one which I think we shall not be able to make again upon the same terms. Nearly the whole of it (except £357) was 6 per cent. stock, so that that purchase has saved us about £150, which £150 will in future fall into the amount divisible among the original shareholders.

Mr. RHODES: What class of stock have you bought?

The CHAIRMAN: We have bought all four stocks. My friend, the deputy-chairman, wishes me also to state to the meeting that we hope soon to be able to pay interest on the instalments of the issue of 1845. Most of you are aware that a sum of nearly £3000 is due to those gentlemen who paid up the instalments in 1845, the interest on which we were obliged to cease paying when we fell into difficulties in 1847. We were not able to pay interest upon this stock till we resumed payments upon the preference shares; it would have been illegal to do so; but, having now begun those payments, I hope we shall be able shortly to liquidate the arrears, and to continue it in subsequent half years, and before long also to pay something upon the black shares. I think this is all I have to say to you. If any gentleman has a question to ask in reference to the report, I shall be ready to answer it, and shall now conclude by moving that the report and accounts be received and adopted.

Mr. RHODES: I second the motion. I perceive you have put the new purifiers at Vauxhall into operation.

The CHAIRMAN: Yes, the whole of them are in operation.

Mr. RHODES: I suppose during the last half year you have been able to reduce the leakage?

The CHAIRMAN: I am afraid we cannot say that we have. We have alluded in our report to certain causes which have affected our profits for the half year. In the districting we have necessarily had to take up many mains and lay down others, and a great deal of leakage has been occasioned in this manner. Besides this, during the last year we have been obliged to bring new retorts into use at Nine Elms, the profit from which is smaller than it should be. Our only mode of estimating leakage is upon the coal used and the quantity of gas we have been enabled to give our customers. The leakage has been somewhere about 28 per cent., which is much higher than in previous years.

Mr. RHODES: I suppose the engineer is looking to the state of the mains which you have taken to in consequence of the districting, and of the condition of which you know nothing. There are cases in which mains have been down for thirty years, and when examined they have been found to be like brown paper. This must occasion great leakage; and therefore, I think, the sooner the engineer looks into that matter the better for the company.

The CHAIRMAN: We have been taking up a great many mains in places where we found it convenient, and where there were duplicates, and put down one or two in their place. By degrees the connexions will be much simplified. Many are still lying dead, but the work is now going on, and in the course of the next summer most of them will be removed.

Mr. RHODES: Respecting the last bond debt you contracted for the back dividends of the shareholders—I suppose the interest upon the bonds will be ready for the holders every half year?

The CHAIRMAN: We have announced in the report that from the day after to-morrow we shall be prepared to pay dividends upon that stock. Whether or not we shall be able to do so another half year, I cannot say.

Mr. RHODES: Do you call it dividend or interest?

The CHAIRMAN: Dividends, because they are shares or stock of the company. I think I gather that the object of your question is this: supposing in any half year the profits are so small that they are not sufficient to pay dividends upon the preference stock, will the dividends not paid one half year be cumulative, so as to be payable in future half years? In answer to that, I would say that there is a clause in our Act touching this point. I will not trouble the meeting by quoting the whole of it, but the marginal reading is this:—"If profits in one half year are not sufficient to pay preference dividends, &c., deficiency to be made up afterwards"—that is to say, if in any one half year we are not able to pay dividends upon the new stock, we should be bound in subsequent half years, when we made a profit, to pay those dividends in full: they will be cumulative.

Mr. RHODES: What is the actual amount of bad debts?

The CHAIRMAN: There is an item in the profit and loss account, "Allowances and Bad Debts," £776. 15s. 8d. If you assume that the £76 represents the amount of the allowances, and £700 the bad debts, you will get about the correct state of things.

Mr. RHODES: I think you might avoid making so many bad debts by adopting the plan which other companies follow, of requiring some customers who are very dilatory to pay beforehand.

The CHAIRMAN: In the case of doubtful customers, where it is perfectly notorious that they are disposed to evade payment, and sometimes in the case of lodgers and weekly tenants, when there is a strong probability of our making a bad debt, it is the custom with us, as with other companies, to require something to be paid down before laying the gas on at all; in fact, it is the only mode of making sure of receiving payment at all in some cases. We have also a custom that when any house is notoriously a bad one for payment—that is, if we have made bad debts there with several tenants—to compel the new tenant to pay something in advance. But we, as well as the other companies, are very anxious not to press customers now more than when there was competition; and therefore, though we feel it necessary to adopt a stringent rule in reference to those who are dishonest, we are rather disposed to indulge those who are honest; that is to say, if it is more convenient to a large consumer to pay his account yearly or half-yearly, he has only to mention it to the board, and I am sure we should agree to it, though, as a rule, we do not think that any rental should run over half a year, and in general should be collected quarterly.

Mr. RHODES referred to a case on the Surrey side of the water, in which, he said, a publican requiring ten lights had applied to the company supplying the district to lay on the gas, offering security for the payment of the rent as it became due; but the company declined to supply him except on a payment in advance of £3, which sum they subsequently refused to refund to him.

The CHAIRMAN: That is not the case with us. Whatever sum we require to be paid in advance, we keep in hand so long as the customer burns our gas; but it is deducted from the last payment he has to make, and if there is any balance, it is handed back to him. There really is no mode of securing the rental from very small consumers, such as weekly tenants, unless we keep them in advance. If the honourable proprietor will consult any gas company, he will find that the class of customers most likely to run away and not pay are publicans, and we lose more by them than any one else.

Mr. SYKES: I wish to ask why the sum named in the Act of 1857 as being applicable to the sinking or redemption-fund—viz., £750 half yearly—has been so largely exceeded, and whether the directors have the power and the intention to exceed it for the future?

The CHAIRMAN: We are required by the Act of Parliament to lay by £750 each half year before we pay any dividends to the black shareholders, in order to form a sinking-fund to redeem the stock created under that Act to which Mr. Sykes refers; but we cannot tell when that stock will come into the market, and we can only purchase it when it does. We cannot, therefore, always wait until we have sufficient money in hand, but must purchase when we can, and make up the money afterwards. It is simply a matter of account. The payments of dividend will be made, not after the sum we have actually expended is deducted, but after the £750 is laid by; so that, if we had expended £5000, we should divide all the profits realized except £750.

A PROPRIETOR: Where do you get the money from to make these purchases?

The CHAIRMAN: In a large concern like this there is always a considerable floating sum in hand, so that if we have to pay £1000 on any one day, it makes no difference.

Mr. SYKES: Allow me also to ask whether there is a sufficient sum to the credit of the contingent-fund to pay the arrears of interest upon the black shares of 1845?

The CHAIRMAN: It does not necessarily follow that it will come out of the contingent-fund, but there is in the contingent-fund considerably more than enough.

Mr. SYKES: Do you intend to pay that out of the balance of the contingent-fund, or wait for ordinary profits to start clear?

The CHAIRMAN: Not having paid it, we can hardly say. It has all been charged.

Mr. SYKES: At present there is no datum for the original shareholder to calculate upon as to where his dividend is to come from.

The CHAIRMAN: Then I will say this: the £3000 which is due as interest upon those shares has been all carried to account, and therefore it will not at all influence the interest to be paid to the original shareholders. Supposing that next half year there is sufficient profit to pay interest upon the preference shares and lay aside £750 to the redemption-fund, all the surplus profit will be divisible among the original shareholders. But the shareholders should recollect this, that under our Act of Parliament the directors have to make a scheme for a dividend, and it does not follow that in our discretion we should think it right to divide the whole of the profits of that half year. Supposing the next half year were an extremely favourable one, and we should be enabled to pay 3 per cent. upon the original shares, I do not think we should be disposed to do so, because we must necessarily feel uncertain whether a similar profit would be realized in the following half year, and it is desirable, as much as possible, to make our dividends from time to time equable. Therefore we should be disposed to carry something to a dividend-fund to supply deficiencies in future years.

Mr. SYKES: But at no time you will exceed the £1500 a year to the redemption-fund?

The CHAIRMAN: No; we have no power to do so.

Mr. RHODES: You have mentioned the JOURNAL OF GAS LIGHTING: I have had the opportunity of going through the whole of the case which you refer to, and it appears to me an able, clear, and candid statementt hroughout. Having been connected with chemical operations, I read it with delight.

The motion was then put and carried.

Mr. JONES moved a vote of thanks to the directors for their assiduous attention to the business of the company. He said: I have always had faith in the board, and I congratulate my brother shareholders upon the very successful position to which they have brought the affairs of the company.

Mr. RHODES seconded the motion, which was cordially adopted.

The CHAIRMAN: On behalf of my brother directors and myself, I have to

thank you again, as I have done before, for the great kindness with which you have always treated us. In far worse times than the present, you assisted us not only with your good will, but substantially with your money. Thanks to that assistance, and, I may say, the energy displayed by the directors—for we have diligently attended to your business—the affairs of the company have been brought to the satisfactory position they are in to-day. I do believe that no company has ever been in so bad a position as we have been—on the verge of bankruptcy; but now we are working as well as any company in existence, and you would find, if we were not obliged to lay aside so much money for depreciation of our leasehold property, that our profits would enable us to pay you a dividend of 5 per cent.

Votes of thanks to the engineer, the auditors, and the secretary were severally adopted and acknowledged, and the proceedings terminated.

IMPERIAL GAS COMPANY.

The Ordinary Half-Yearly General Meeting of this Company was held on Thursday, the 14th inst., at the Offices of the Company, 33, John Street, Bedford Row—WILLIAM PARRY RICHARDS, Esq., governor, in the chair.

The SECRETARY (Alexander Henry, Esq.) read the advertisement convening the meeting, and the corporate seal of the company having been affixed to the register of proprietors,

The CHAIRMAN read the following report:—

Your directors beg to report that since the last half-yearly meeting no occasion of importance has taken place affecting your interests, with the exception of the appointment of a committee of the House of Commons to inquire into the supply of gas to the metropolis, and as to the necessity of further general legislation on the subject, owing to the districting which has taken place among most of the companies.

The originators of this inquiry have stated their main object to be to ensure the insertion in all the Acts relating to the metropolitan gas companies of those clauses which were introduced in the last Act of the Imperial Company for the protection of the public, and therefore, so far, the interests of this company may be considered as not affected by the inquiry; but as the committee is to be resumed in the next session, your directors will feel it their duty to carefully watch its proceedings.

In the meanwhile, the result of the districting before referred to has been very satisfactory, by concentrating the area of supply and thus enabling the companies to conduct their business with greater economy to themselves and greater efficiency to the public, whilst the constant breaking up of the pavements, arising from a multiplicity of pipes in the same streets, has been in a great measure avoided.

The directors have gladly availed themselves of opportunities which have recently offered to purchase some valuable land and premises adjoining your chief stations, which will enable them to further add to the capacity of those works, and thus to meet all further demands upon them; and they have the pleasure to report that your works and mains are in an efficient state to meet the existing demand.

You will see by the accounts which will be presented to you to-day that the operations of the last half year have been as successful as your directors anticipated. They exhibit a net profit for the half year of £40,608, which will enable you to declare a dividend at the rate of 9 per cent. per annum, and carry over £1045 to the next half year.

It is gratifying to remark that the increase of the gas rental for the last half year over the corresponding one of 1857 is nearly £6000, and on the net proceeds of coke upwards of £6000, whilst the cost of the coals consumed is only £4375 in excess of that for the corresponding half year.

Your directors have only further to report that the last call of £2. 10s. per share on the new capital has been fully paid up.

That they have renewed the contracts for lighting the extensive parishes of St. Pancras, and St. Giles, Bloomsbury, the former for a period of seven, the latter of three years.

In conclusion, they beg to recommend that a dividend for the half year ending June 30 last be now declared, at and after the rate of 9 per cent. per annum, or 45s. per old share and 11s. 3d. per new share, less income-tax, and that the same be paid on and after this day.

The manufacturing account, the profit and loss account, and the general balance-sheet were read by the SECRETARY.

The CHAIRMAN then rose, and said: Gentlemen, it is now my duty to move the reception of this report and the accounts which accompany it. I do it, I assure you, with great pleasure, because the report bears out the anticipations of the directors as expressed at the meeting a year ago, that the reduction of your dividend to 7 per cent. would not be of any long continuance. We at that time laboured under very considerable disadvantages, for we had expended an amount of capital which had not then become productive. The price of our coals was considerably enhanced by the expectation of long-continued high freights, and our coke certainly was not selling as we could wish it to do. All these untoward circumstances have now been considerably mitigated. (Hear, hear.) The continued increase in the demand for gas has followed closely upon the expansion of our investments; by new combinations we have considerably reduced the contract price of our coals, and coke is now selling fairly enough. (Hear, hear.) These are three important items. It is, no doubt, of very great importance that we should be able to establish, if possible, a uniform rate of dividend, and nothing is so undesirable as to declare a dividend which we should not be able to maintain. In a company of this sort—manufacturing and commercial, and hampered as it is by Acts of Parliament—to do this is simply impossible. There are so many circumstances operating that it cannot be done with any certainty; but it is the business of your directors, as far as they can do it. Now, as at the last general meeting, when we declared a dividend increased from 7 to 8 per cent., we then had an opportunity of looking into the operations of the then half year, and were enabled to tell you that we should surely be able to maintain that dividend on this occasion, so, likewise, we have now so far an insight into the operations of the present half year, that we have no hesitation in saying that we shall be able to maintain our dividend at 9 per cent. when we next meet again, and I hope we shall be able to continue it afterwards. But expressing that hope, I beg you to understand it as nothing like a promise made, because, under the circumstances of all gas companies at the present moment, it is quite impossible to promise anything. The report has stated that we have improved our premises by buying certain portions of land. I think every thinking mind must agree with me in viewing with considerable earnestness, if not anxiety, the continual extension of our capital. (Hear, hear.) The directors are fully alive to it; and it is their great anxiety not to expend money on anything that is beyond the actual necessities of the company. (Hear, hear.) Hitherto the increased demand for gas has followed quickly upon our preparations to meet it, and as long as that continues we are all right; but the directors are fully aware of the danger there is to spend money when we have got it, and I think I may say they are cautious not to spend more than is absolutely necessary. (Hear, hear.) As stated in the report, we have purchased some land which will hereafter be extremely useful to the company. I am fully aware of the temptation that there is always to be extending your premises when you have the money to pay for it; but I really do not think that that imputation can be cast upon your present directors. Whatever they have purchased, if it has not been absolutely necessary, has been purchased because the opportunity presented itself; and if that opportunity were lost, it would never return. A very striking instance of that is afforded in the purchase we last made of some land which is on the west side of the wharf at Shoreditch, which, if sold to other parties, and occupied as a coal wharf, or for any other very busy trade, would stop up the wharf so much that, with our present large business there, we could not carry our own coals into our works. You need not be alarmed with any idea that we are prodigally expending the capital you have; for I can assure you that the directors are fully aware of the necessity of caution, and I believe that they exercise that caution very discreetly. In all our undertakings we must remember that too thrifty an economy often leads to very great waste. That we have often seen in our public works; and it is a foolish and niggardly economy not to expend money upon that which you can see must be ultimately useful to you. (Hear, hear.) I have now nothing more to say; but move that the report be approved and entered on the minutes.

A PROPRIETOR: May I request such information as is prudent with reference to the Fulham affair before we come to the vote.

The CHAIRMAN: I shall be happy to give you every information in my power. All I can say is, that the appeal case has not yet come on. We can give you no further information than that it stands for appeal in the House of Lords.

Dr. BEATTIE: It may be in the recollection of some gentlemen in this room that, while I expressed some surprise at the reduction of our dividend from 10 to 7 per cent., I stated that I had reason to hope that the usual dividend of 10 per cent. would soon be renewed, inasmuch as I knew there was an increasing revenue, and that the reduction only arose from some temporary circumstances which would not be continuous. What those circumstances were in my opinion, I ventured to submit to the meeting. Your honourable chairman, I remember well, held and gave expression to a view not so favourable as the one which I held; and, as all are necessarily influenced by his long experience, the value of our property was thereby affected. I rejoice now at the announcement which we have heard to-day, and I am sure all present must rejoice also at the satisfactory reaction which has taken place in regard to our property, for within one year we have returned to a 9 per cent. dividend, which is only 1 per cent. less than it has hitherto been. I have very considerable hope that ere long we shall not only have our 10 per cent. dividend, but perhaps your directors may be enabled to give us a bonus. ("Hear, hear," and a laugh.) I have experienced such a result myself, under similar circumstances, in a very large and well-managed company; and when I reflect who the gentlemen are who constitute the board of direction of this company, and especially when I see our energetic secretary fully recovered from the late severe indisposition under which he has been suffering—(applause)—and able to give his whole attention to the management of our affairs, I must publicly express my fullest confidence in the continued prosperity of this great concern. (Loud cheers.)

A PROPRIETOR: Allow me to ask a question with reference to a circumstance now occurring in my own neighbourhood. Are you aware, sir, that there are certain parties erecting small works of an experimental character in Upper Holloway for the supply of gas manufactured from water? They have also guaranteed certain parties in the immediate neighbourhood that they will supply them at 3s. per 1000 feet.

The CHAIRMAN: I was not aware of the particulars you have stated, but our secretary tells me that he is. As to gas made from water, it is a very old experiment, and I do not believe in it.

The PROPRIETOR: I am told that they have so far succeeded in France as that they supply a whole town.

The CHAIRMAN: I have often heard of the plan succeeding, but I do not believe it. However, if gas is to be made from water, we have got the means of making it. (Hear, hear.) I am very glad to hear the view taken of our prospects by the honourable proprietor. You are fully aware of the difference between a proprietor speaking in the body of the hall and the president of a board of this sort holding the same language. (Hear, hear.) I am bound not to say anything to depreciate or enhance the value of the property. If the words to which the honourable proprietor has alluded, or anything like them, had fallen from my lips, I should have had it imputed to me that I had given a false colouring, perhaps, to your affairs. I am very glad to find that a cheerful view was taken by the honourable gentleman, and that that view was echoed by the rest of the meeting. (Applause.)

The resolution approving of the report and accounts passed unanimously.

A resolution authorizing the payment of a dividend at the rate of 9 per cent. per annum, less income-tax, passed unanimously.

Mr. PERRY moved, and an honourable PROPRIETOR seconded, a vote of thanks to the chairman and directors for their able conduct of the affairs of the company, which passed by acclamation, and, having been duly acknowledged, the meeting separated.

SURREY CONSUMERS' GAS COMPANY.

The Half-Yearly General Meeting of this Company was held at the Bridge-House Hotel, Southwark, on Thursday last, the 21st inst.—THOMAS POCOCK, Esq., in the chair.

The notice convening the meeting having been read, a formal resolution empowering the directors to affix the seal of the company to the register of proprietors was adopted.

The following reports and statements of account having been previously circulated among the shareholders, were taken as read.

Gentlemen,—The accounts which are herewith submitted for your consideration afford the necessary information of the financial condition of the company.

The balance, after allowing for all payments out of the income received for the last half year, shows a net profit of £5445. 12s. 3d.; and your directors, following the rule which has hitherto guided them, recommend the usual dividend, after the rate of 8 per cent., which, if agreed to, will leave a surplus of £454. 0s. 9d. to be added to the previous balance of unappropriated profits, from which your directors purpose to write off a further sum of £2000 from the cost of the works.

In accordance with the resolution passed at the last meeting, your directors instructed the auditors to examine the rental-books of Mr. Croll to the 30th of June last, in order to ascertain the amount of gas rental to that period; and those gentlemen have, after a minute examination of the books, reported the amount for the half year, as previously stated by Mr. Croll to the board, to be £19,738. 19s.

Referring to the inquiries which were made at the last meeting, as to whether Mr. Croll had any claims against the company apart from his contract, your directors at the time felt that the answers to those inquiries ought with more propriety to have come from Mr. Croll himself, and they regretted that his unavoidable absence on the occasion precluded the opportunity of then setting at rest all doubts upon the subject. Your directors have now the satisfaction of reporting, that they have the fullest assurance from Mr. Croll that he has no claims against the company unknown to them, and that all accounts between him and the company are, as they have always been, periodically settled.

The next subject to which your directors deem it proper to advert, is the parliamentary committee which was appointed during the last session to inquire into the supply of gas to the metropolis. In the evidence given before that committee allegations prejudicial to the company were made; and although the evidence, so far as it went, was *ex parte* and confined to two or three witnesses, your directors nevertheless deemed it advisable, as well for the satisfaction of the shareholders as for the consumers of gas supplied by the company, to cause inquiry to be made into the mode in which the company's operations had been conducted, as regards the manufacture and supply of gas, and how far Mr. Croll had in other respects performed his

obligations to the company. The result of the investigation is shown in the very able report of Mr. Thomas Hawksley, the well-known engineer, and is hereto annexed for the information of the shareholders. Fortified with the opinion of so eminent an authority, your directors trust to be able, should the committee be re-appointed in the next session of Parliament, to refute any charge that may be brought against the company to the satisfaction of the committee and the public.

Your directors have, in obedience to the recommendation conveyed to them at the last meeting, added the name of Mr. William B. James to the list of directors.

Dr. PROFIT AND LOSS ACCOUNT, FROM JANUARY 1 TO JUNE 30, 1858. *Cr.*

To direction and audit	£ 415	15	0	By amount due and to be paid by Mr. Croll for rental	£4,775	0	0
Interest	972	5	4	Interest upon capital expended upon works extensions	2,697	15	5
Salaries	173	14	9	Transfer fees	6	15	0
Charges	43	6	3				
Repair of meters	245	18	9				
Stationery, printing, and stamps	33	7	5				
Paving	86	12	4				
Rents and taxes	50	15	4				
General repairs	5	5	0				
Insurance	6	18	0				
Balance	5,445	12	3				
	£7,479	10	5		£7,479	10	5

Dr. BALANCE-SHEET, JUNE 30, 1858. *Cr.*

To capital account, old shares	£69,877	10	0					
Amount unpaid	115	16	0					
			£69,761	14	0			
New shares, 1st call	£11,288	0	0					
Ditto 2nd call	11,288	0	0					
Ditto 3rd call	11,288	0	0					
Ditto 4th call	11,288	0	0					
Ditto 5th call	11,288	0	0					
	£56,440	0	0					
Amount unpaid	1,158	0	0					
			55,282	0	0			
Deposits and shares forfeited			200	8	0			
Creditors on bond	£34,000	0	0					
Ditto on loan	8,000	0	0					
Ditto, sundry	1,903	3	1					
			43,903	3	1			
Balance of revenue account	£2,138	17	5					
Balance of profit and loss for this half year	5,445	12	3					
			7,584	9	8			
Dividends unclaimed			74	6	10			
			£176,806	1	7			

By amount expended on works to Dec. 31, 1857			£144,131	11	7	
Expended this half year—						
Works extensions	104	9	8			
Meter-fixing	34	14	0			
Meters	12	11	3			
Main-laying	66	7	5			
Service-laying	59	1	5			
Law	29	16	9			
			£144,438	12	1	
Deptford Gas-Works			20,648	16	0	
Offices	£1,428	13	10			
Office furniture and fixtures	275	16	3			
			1,704	10	1	
Sundry debtors			9,083	13	1	
Cash balances—						
General account	£876	0	8			
Dividend ditto	52	13	0			
Petty cash	1	16	8			
			930	10	4	
			£176,806	1	7	

MR. HAWKSLEY'S REPORT.

To the Board of Directors of the Surrey Consumers' Gas Company.

London, Sept. 30, 1858.

Gentlemen,—In compliance with your instructions, I have made a survey of the works and apparatus held and used by Mr. Croll, under an agreement with your company, dated Jan. 1, 1855, and have also inquired and examined into the several matters referred to me through your secretary, Mr. Boddy. I have twice inspected the gas manufactory at Rotherhithe, and was on both occasions obligingly attended by Mr. Boddy and Mr. Croll; and I have also had before me all the papers and documents which appeared to be necessary for the purpose of my investigation.

First, with regard to the sufficient maintenance and repair of the premises used by Mr. Croll, I find that gentleman's obligations in these respects mainly arise under the 5th and 10th articles of the agreement. The former of these articles provides—"That the said Alexander Angus Croll shall, for the purpose of manufacturing the gas of the said company, use and employ the buildings, machinery, plant, and premises of the said company," &c.; and the latter provides—"That the said Alexander Angus Croll shall, at his own costs, keep the premises, buildings, works, machinery, and plant of the company in good condition and working order during the whole term of this agreement, and shall make good and repair or replace all the machinery and apparatus, including gasometers, retorts, main and service pipes, and meters which may be or become destroyed or damaged during the continuance of this agreement; and shall, at the expiration, or other sooner determination, of this agreement leave the said premises, buildings, works, machinery, plant, and other articles and things belonging to the said company, in good, serviceable, and substantial working order (fair wear and tear and accidents caused by the act of God excepted)." These mutual covenants are exceedingly clear and comprehensive, and appear to leave no doubt as to the rights of the parties *inter se*. On the one hand, Mr. Croll is to have entire possession of the works and apparatus of the company; and on the other hand, the company is protected by the undertaking of Mr. Croll, not merely to re-deliver the works and apparatus in "good, serviceable, and substantial working order," but to keep the premises, &c., in good condition and working order during "the *whole term*" of the agreement. It therefore became my duty to satisfy myself whether the premises of the company are, at the present time, in the good condition and working order required by the contract. On this point (but necessarily disregarding matters of insignificant detail) I beg to report as follows:—

Buildings.

(*a.*) That the structure of the coal-hoist and stage is in general good condition.

(*b.*) That the machinery of the coal-hoist (not seen in operation) appears to be in perfect working order.

(*c.*) That the wharf cranes are in good repair.

(*d.*) That the store-rooms connected with the office building are sound, weather-tight, and well painted.

(*e.*) That the bridge and tramway to and into the retort-house are in general good condition.

(*f.*) That the retort-house and coal-stores are in good state, the ironwork of the roof excellent, but some of the slating imperfect and damaged.

(*g.*) That the sheds over the entrance-passage are sound in the timbers, and appear to be weather-tight.

(*h.*) That the new coal-store appears to be perfect.

(*i.*) That the bell-tower, with the exception of the glass and some of the joinery, is in good state.

(*j.*) That the new boiler-house is in very good condition.

(*k.*) That the engine-house is now undergoing repair, in consequence of the floor and ceiling having been damaged by an accidental fire.

(*l.*) That the purifying and ammonia-houses are, generally speaking, in tenantable condition and working order; a few repairs are, however, here and there required.

(*m.*) That the smithy is in fair condition—a few slates off the roof.

(*n.*) That the meter and governor rooms are in good condition; also the carpenters' shop.

(*o.*) That the store-rooms and coke office, on the west side of the yard, are in good condition.

(*p.*) That the boundary walls are good; but the gates need paint, and some slight repairs.

(*q.*) That the stoker's lobby and washhouses are in general good order.

(*r.*) That, so far as can be observed externally, the manager's house is in good tenantable condition.

Apparatus.

(*a.*) That the retort benches in the main building, so far as they can be now judged of, appear to be in very good condition. All are reported to be ready for winter's use except one bench, now under repair, and two other benches, the retorts of which have to be taken out and renewed. The brickwork is exceedingly good; and according to the return of gas produced, and the fuel consumed, the internal condition of the ovens and retorts is satisfactory.

(*b.*) The iron stage is in general good order.

(*c.*) The mouth-pieces, doors, ascension-pipes, and hydraulic main are in good working order, and generally tight. One of the sections of the hydraulic main was broken by an accident, but a repair has been made.

(*d.*) The foul mains are all in good order.

(*e.*) The retorts in the open yard—26 in number. This is not a very satisfactory arrangement, either for the contractor or ultimately for the company; but as the retorts are only intended to be used under very exceptional circumstances, and for very short periods, during mid-winter, and perhaps only till the construction of the benches, for the reception of the 42 additional retorts, for which provision has been made in the construction of the new retort-house, it may be fairly treated rather as of a temporary than a permanent character. Viewed in this light, these retorts and benches, and the apparatus connected with them, may be pronounced to be in a sufficiently good working condition to be again brought into action (if so required) for mid-winter purposes; and, accordingly, the furnaces have been renewed, and the whole apparatus made ready for use, though there is no great probability of their services being required in the approaching season. What has been done, in my opinion, satisfies the obligation of the contract.

(*f.*) That the vertical condenser is in excellent condition.

(*g.*) That the horizontal condenser is submerged in a cistern filled with water, and, consequently, could not be examined. From the answers given to my inquiries, I am satisfied it is in good working order.

(*h.*) That the two boilers, two steam-engines, and three exhausters are all in order, and, as far as I can perceive, in efficient repair; as also are the shafting, gearing, and pumps.

(*k.*) That the washer, manganese vessels, and mixing vessels are sound and tight, and appear to be in perfectly serviceable condition,

(*l.*) That the two double-iron oxide purifying vessels are in excellent state.

(*m.*) That the station-meter works well, and is in good repair.

(*n.*) That the double-lift telescope-gasholder and wrought-iron tank are in good order, and are gas and water-tight. These are excellent vessels.

(*o.*) That the large three-lift telescope-gasholder is in first construction a very inferior piece of workmanship, and rests 18 inches out of level. Much difficulty has till lately been experienced in working it; but it now performs tolerably well. It appears to be in tolerably good repair, but must always be expected (owing to defects in its original construction) to require much attention, and more than the usual amount of maintenance. The brick tank of this gasholder is not, and never has been, water-tight: the present leakage amounts to about one inch vertical per twenty-four hours. The defects alluded to are defects of construction, and therefore do not strictly fall within the 10th article of the agreement; but their existence will probably increase the amount of wear and tear to which these works are liable.

(*p.*) That the single-lift gasholder at Blackhorse Bridge is a fine piece of workmanship, and is in excellent condition. The brick tank of this gasholder is, however, leaky, and allows the water to subside to somewhat more than two feet below its proper level. This is also a fault of construction, capable of remedy. The governor and valves connected with this gasholder are in good working order.

(*q.*) That I have not been required to make a special inspection of the two gasholders at Deptford. My acquaintance with them is, however, of very recent date, and I therefore apprehend they are now in the same condition as they were when they passed into Mr. Croll's hands.

(*r.*) That it appears to me wholly unnecessary, at the present time, to make any special inspection of the state of the mains and services, which only deteriorate by gradual decay, for which, I apprehend, Mr. Croll is not responsible. The durability of the meters depends more upon being kept well painted than upon any one other circumstance. They ought to be painted once in two years, and the company should employ an inspector to see that this is regularly done. My own experience leads me to the belief that there is from five to seven years' difference in the average durability of well and ill-painted meters.

With respect to the state of the pressure in the different parts of the district.—It appears to me that there are very few places, and those very remote, in which it is not at present ample; but it is stated that at Hatcham the pressure descends to 6/10ths of an inch when 1½ to 2 inches pressure is put on at the works. This indicates an insufficiency of transmitting power in that direction, and consequently the necessity for an enlargement of the principal branch main leading into that district. With a maximum pressure of two inches at the works, and on a level district, the pipes may be considered to be on the verge of becoming too small, if the pressure falls much below one inch in the remoter mains. The conditions of supply have of late years much altered, and it is not now desirable to diminish the pressure of maximum delivery anywhere below 8/10ths of an inch, nor the pressure of minimum delivery anywhere below 6/10ths of an inch. I may add that the pressure at the works is quite as high as is consistent with economical working or with the convenience of the consumers of the gas, and consequently that no blame attaches to Mr. Croll by reason of the reduction of pressure at the distant extremities below what I consider its proper amount; indeed, a considerable augmentation of pressure at the works would scarcely influence the working pressure at the extreme end of the district.

As regards the illuminating power of the gas, I may state that I have examined the records and returns of your experimental chemist, and am satisfied, first, of the commercial purity of the gas supplied from your works, inasmuch as it appears to be entirely free from sulphuretted hydrogen and ammonia; and, secondly, because its illuminating power averages from 14 to 15 candles, and appears to be as uniform in its value as practical conditions will permit. I have also inspected the experimental room, and consider the apparatus employed of a proper kind and well suited to the purpose. The room is lined with a lighter paper than is now usually introduced into experiment rooms, and it may be that the real power of the gas is slightly exaggerated by the effects of reflection, but certainly not to any considerable extent; nor does the mode of determining the illuminating power at your works, even in this respect, differ from the mode in use by all companies at the time the parliamentary standard of light was first introduced. In deference, however, to modern practice, I now recommend the future use of a non-reflecting lining.

It appears that charges of a public nature have been made against the gas of the company, on the very vague ground that the amounts paid by certain of the con-

sumers of the company's gas have been latterly augmented. I know, from long experience, that charges of this nature cannot be substantiated on this ground, because the circumstances under which gas is consumed, even when they appear most unchanged, are in reality subject to so many unobserved alterations, as to render an isolated fact of this character entirely worthless, as a means of determining a cause from a given result. An augmentation of pressure rendered necessary by a general augmentation of consumption, a slight and unremarked leakage, the negligence or wastefulness of servants, an accidental or intentional increase in the size of the burners, a change from a leaky to a sound meter, an unobserved increase in the number of hours of burning, a dull winter, an error in the recordation of the meter index, or a variation in the intervals between which the registration is taken, and several other similar causes, will sufficiently account for the public, and probably sought for, complaints which appear to have been alleged against your company. It is sufficient to state that no gas company, the best managed as well as the least carefully conducted, is able to avoid charges of this uncertain character.

I have the honour to be, Gentlemen, your most obedient servant,

(Signed) T. Hawksley.

The Chairman: Now, gentlemen, I have to move—"That the report and accounts be received." It is the custom to move that they be received and adopted, but I shall divide this motion into two, as I did on the last, and, I believe, the previous occasion, because it affords an opportunity for any matter which is contained in the report to come under discussion by the shareholders.

The motion having been seconded, was carried unanimously.

The Chairman: Now, gentlemen, I shall take up but very few minutes of your time in making any remarks upon this report. I am very happy to say that your directors meet you to-day upon one of, perhaps, the pleasantest occasions since we have been a gas company. It gives me great gratification that I am here before you to-day occupying the honoured position in which you have been pleased to place me as chairman of your company, and that, in connexion with my brother directors, I am able to bring before you such a report as that which has been placed in your hands. It gives me pleasure, I say, inasmuch as that report is one which contains nothing but the simple truth. I feel this the more especially, because I am obliged constantly to read in the papers of that which, in connexion with public companies, gives me so much pain—viz., what is termed "conjuring" or "cooking" accounts and reports to lay before shareholders. I hope I shall be taken away from this world rather than be a party with any body of men to bring before you a report which is not at once simple, true, and honest. (Cheers.) I stand before you to-day, feeling that we have presented such a report—a report which has nothing in it but what is straightforward, simple, and true, giving you a correct account of your affairs, and that, too, in a manner which is so simplified that a child almost may understand them. And, consequently, I feel that it is a high privilege to meet the shareholders to-day under such very encouraging circumstances. I shall have, perhaps, to make some remarks hereafter relative to the dividend—relative also to the position in which we stand as a company with our excellent engineer, Mr. Croll—and also relative to the report which we have obtained from Mr. Hawksley, who occupies so high a position as one of the first engineers in the country, relative to the condition of your works. At present, I will simply move the adoption of the report.

The motion having been seconded,

Mr. Blake said: I am not at all desirous of detracting from the satisfaction which you, sir, have expressed, and which, no doubt sincerely, you desire to convey to the minds of the assembled shareholders on the present occasion, with regard to the position of their investment in the Surrey Consumers' Gas Company. But I feel it my duty to rise and utter (at the right time now, I trust) a word of caution, in order that we may, if possible, secure the continuance of the advantages—allowing them to be such—to which you have referred, not only at the end of our present contract, but something beyond it. You will, perhaps, permit me to refer for a moment to one or two items in this report, upon which, I think, I have reason to congratulate the shareholders. This is the first appearance since I have been a shareholder in the company of a statement in the directors' report as to the amount of the revenue—the first intimation; and from that intimation I find that our revenue is, according to the printed figures, about £39,500 a year. (No, no.)

The Chairman: You are quite right; it is nearly.

Mr. Blake: So nearly that I think there need be no difference between us.

Dr. Liddell: It may be correct, but it does not follow as a consequence that, because the last half year's rental was £19,738, the rental for the whole year will be £39,500.

Mr. Duval: I think it would be better for the honourable proprietor to speak of it only for the half year.

Mr. Blake: Then I will deal with the revenue for the half year; and I will tell you why I attach importance to the publication of that amount. It may not be generally known to the shareholders that a part of Mr. Croll's contract is this: that when the income from rental touches £42,000, that gentleman is bound to pay an additional sum of £900 a year to the funds of this association.

Mr. Croll: Hear, hear.

Mr. Blake: That will be a benefit to us, if not in the shape of an increased dividend, in the shape of a provision for a reserve-fund, so as to give permanence and stability to the company. At the present time we have no provision of that kind, and no precaution against future contingencies. We are simply passing under and through a contract; and there are some circumstances connected with that contract to which I shall feel it my duty shortly to call your attention, because I think it much more particularly deserves that attention at the present moment than at any previous period in the existence of the association. And, first, with regard to this revenue, let me point out to you the advantage of knowing what the amount of it really is, beyond the simple fact of the information itself. If anything is calculated to produce amongst us a desire to put forth exertions to increase the business of the company, it is to know that by raising the revenue only some £2000 from the present time we shall add £900 a year to our actual profits. This is a stimulus to exertion, but while we were kept in the dark upon that point there was no motive to exertion; we were labouring in ignorance, and only occasionally those of us who are in the habit of attending the meetings of the company heard something as to what would be the result of an increase of the rental. But then every shareholder does not attend these meetings, and therefore all did not become aware of the fact.

The Chairman: I do not know whether I shall be in order in stopping you at that point to reply to your observations.

Mr. Blake: You will have abundant opportunity of replying to me hereafter, and it would be more graceful and kind not to interrupt me. There is another point to which I wish to allude. You, sir, are taking some credit to the board for, and are congratulating the shareholders upon, the present condition of the works, as evidenced by Mr. Hawksley's report. Now I should say, from past experience of Mr. Croll, that he would not be acting with the prudence and capability which he has always shown in the management of his own affairs, if he allowed the works of this company, just three years before the expiration of his contract, to fall into such a condition of dilapidation as to deserve your censure. Nothing could be more injurious to himself than to do so. The present is just the time when those works might be expected to be in the most efficient state, for it is part of his contract to deliver them up at the end of his term in good working order. But then, sir, there is an important provision attached to that requirement, viz., "reasonable wear and tear being allowed." Now, I have read the contract, and that struck me as one of the most remarkable conditions in connexion with a gas-work that I ever heard of. We all know what "reasonable wear and tear" in reference to a dwelling-house means, and we can form some estimate as to what it will come to; but in reference to gas-works, scientific men and engineers may differ on the subject, and it is not only in the power of a man in such a position as Mr. Croll is, but it is just the temptation to which he would be subject: I do not say it to his prejudice, and he will not suppose that I impute anything wrong to him; but I say that he being, unfortunately, both the engineer and contractor to the company, it places in his hands the power, and in his breast the temptation, to use up within the narrowest limits of the law that licence granted to him by the contract, so as to leave him an opportunity to escape under the term "reasonable wear and tear." Now, sir, another gas company have made a very laudable and useful provision against such a contingency with their contractor, and I am not sure whether the agreement which you have with Mr. Croll will not enable you to protect yourselves in a somewhat similar manner. In the company to which I allude they have an engineer apart from their contractor, and that engineer makes periodical visits to the works, in company with the members of the board, to see that nothing falls out of working condition, and that if any fault occurs it may be at once remedied. I consider that that is a very wholesome way of preventing wholesale dilapidation; for what we have to expect is not that there shall be dilapidation to-day, or this year, but in three years' time, when Mr. Croll's contract will expire, and which will then entail great expense upon the shareholders of this company. Now, my object in making these remarks is to urge that some means should be adopted for securing that the works of the company should be placed and kept in good, admirable working order, and that we should have all the best appliances for making gas upon the most economical terms, so that at the end of Mr. Croll's contract we shall be able quietly to carry on our manufacture, under different arrangements, without being obliged to sell our profits to any one else. If we were in that position, we should be able to sell either a better article or a cheaper one, or secure ourselves against future losses by creating for ourselves a reserve-fund. I do not know whether I have succeeded in making myself understood, or whether there is such a provision to protect us against the liability to such a risk at the end of the term; and I beg the directors to inform us, because I do believe it is of serious importance to the welfare of this association that we should then be in as efficient a condition as we are in at the present time. There is also another point which has forced itself upon my attention, which I think is of not less importance, and which I think should make the subject to which I have alluded all the more important in your minds—I refer to the recent paliamentary inquiry into the supply of gas to the metropolis. We all know very well that imputations have been cast upon this association, by persons who have given evidence before the committee of the House of Commons, respecting the quality of our gas and the pressure at which it is supplied; and that there have been other forms of complaint, which I need not now go into, but which have or have not good grounds, as the case may be. These complaints have been urged against this company very strongly, as a reason why some measures should be taken in order to enforce compliance with the wants of the public in this respect. Now, it is very easy for the directors, in the plenitude of their power, to put down inquiries of this kind, and say that there is no ground for them; but the consumers are not so easily satisfied. You cannot give them a bad light and persuade them that it is a good one; and therefore it is better to try and effect a remedy, rather than invent an excuse to divert attention from the subject. It is my hope that, by zealous attention on our part, we shall be able to secure, not only for three years, but in permanence, the good working order of our establishment, and so effectually to put a stop to all complaints,—that if the committee of the House of Commons should resume their inquiries next session, we shall have nothing to dread from the issue of the investigation. If, on the other hand, these complaints gain ground, which they are likely to do, what will be the consequence? The feeling will be, that the evils arise out of an undue monopoly, the advantages of which to ourselves we do not appreciate; and the cure recommended will be to pass a short Act enabling the Phœnix, or some other company, to come into our district. Supposing only the possibility of such a thing, and what becomes of the value of your property? It would sink immediately in the prospect of some one or two companies being let in to give the public the benefit of competition in the supply. And why should we run the risk of that when we are bound, as good and honest men, to give the public a good article, even though we should have to do it without a profit to ourselves? We undertook to make gas, and to make it good; and we knew at the time that it could end only in our discomfiture if we did not do so. We have been charged with not making it good. Let us not by a simple denial try to get rid of the charge, but let us put our shoulders to the wheel, and adopt efficient means to make it so. I would only now ask whether the board are in a position to secure those periodical searching examinations as to the condition of our works which are necessary to keep them in the state of excellency they are now said to be in? Without that, I am afraid at the expiration of three years, which is but a short period to look forward to, we shall find ourselves liable to heavy charges for dilapidations and repairs.

The Chairman: I will endeavour to meet your questions as concisely as possible. There was one remark which you made at the outset, relative to the gas rental, which seemed strongly to impeach the conduct of the directors for neglect of duty, and as if we shrank from the idea of letting the shareholders know what that rental was.

Mr. Blake: That was not my intention.

The Chairman: The impression which your remarks conveyed to my mind was such. I candidly tell you that, when the question was mooted at the last meeting that the gas rental for the previous half year should always be printed with the report, I most cordially fell in with the proposal, and most gladly accepted it, because I do not want anything to be kept in a sort of ambiguity. The shareholders ought to know all the particulars of the business which belongs to them. This is your own property, and if any director should wish to keep back one iota of information respecting it, I say he ought no longer to sit at the board. I say this lest the remarks which you made should convey an impression contrary to what is the fact. The statement of the rental for the previous half year will always come before you in the directors' reports, so that you will know what is going on; and I trust the time will come—next year, let us hope—when the rental will reach £42,000, and then there will be an additional £900 coming into your coffers. Another matter to which Mr. Blake has referred is, as to the quantity and the quality of our gas. Now, I believe the shareholders are aware that we have a competent person—a gentleman appointed by the companies on the Surrey side of the water—who tests the quality of our gas whenever he pleases, and quite unknown to us, and that he records the results of his experiments in a

book, so as to show what is the quality and pressure from time to time. In addition to this, I have to inform the shareholders for their satisfaction (and we have done it for our own) that we have now at the extreme end of our district, just across the way, occupied a room in which we have put up suitable apparatus so that we may be able to tell at all times what is the quality of our gas, and the amount of pressure at the very limit of our district. And we have done this not merely for our own satisfaction and that of our shareholders, but also for the satisfaction of the consumers. We are anxious that the consumers should be satisfied in every respect as well as the shareholders, because we consider that our interests are mutually bound up together. As respects the dilapidation of the works, which our friend has been holding up as something very fearful, and to be looked at with much alarm, I trust, gentlemen, that we shall not meet with anything which, on future occasions, will produce any of those effects, which I am afraid our friend has been anticipating without the least ground whatever. For my part I cannot see any reasons to apprehend anything of the sort. We have been working with Mr. Croll now for seven years, and latterly it has been whispered out of doors that we were going to war with Mr. Croll, and that there would be large claims put forward by him against the Surrey Consumers' Company. Gentlemen, there have been "wars, and rumours of wars;" but I am happy to say that all is, in fact, perfect peace, and that there is no claim whatever against us. We have a letter from Mr. Croll in which he states that he has no claim upon the company, except the usual ones for his periodical payments, and for anything special that we call upon him to do. I hope we shall go on during the next three years as we have done, with our eyes open, not shut. I intend to have my eyes open, I assure you. As Mr. Croll will testify, I have always been very candid in all my conversations with him; and while we find that he is performing his part of the contract to our satisfaction, I am sure we should do the same with him. I have that confidence in him that I am persuaded he will not work our gas-works to death, and leave us at last in that awful position that we shall have to call upon the shareholders for large sums of money to meet dilapidations. The time will soon run away when his contract will be at an end, and I trust we shall then meet to congratulate each other and Mr. Croll that he and we have done our parts honestly, justly, and faithfully. I anticipate as much; if I am deceived, I shall be very sorry for it, not on my own account only, but on the part of the shareholders too. (A Voice: "I hope you will not be disappointed.") I hope not too, but I think it is very unkind to prejudge any man. We have no grounds, as belonging to the Surrey Consumers' Company, to think that we shall be deceived; and, as Mr. Croll has dealt faithfully with us, we have no right to take up with statements out of doors. Mr. Croll can answer for himself as to other matters; I have nothing to do with them. I stand here to say that he has done all that we have required of him, and all that the deed requires of him. I have only to say that it is quite with Mr. Croll's concurrence, most cheerfully given, that we have occupied the room at the extreme end of our district, and have fitted it up with proper apparatus for testing the illuminating power of the gas and the pressure. Indeed, I do not know of a single matter which in a pleasant manner we have put to Mr. Croll that he has not cheerfully acceded to. I may also state to you, that, under our deed, we can, by giving Mr. Croll twenty-four hours' notice, send an engineer into the works to see the condition of them, and that we can require him to put them into complete repair, and to supply anything which may require to be supplied. You do not suppose that we are now going to relax in our duty in this matter? I trust not. Whenever you discover that we have done so, turn us out—have a new set of men. I can tell you that I, for one, shall be most diligent in my attention, that I shall see to it that Mr. Croll does his duty by us, and I trust we shall do our duty by him. I do sincerely hope the shareholders will not go away from this room with a sort of idea that after the lapse of three years we shall be reduced to a horrid state of bankruptcy and misery, for I assure you I do not anticipate anything of the kind. (Cheers.)

Dr. Liddell: I was in hopes you would have alluded to one other remark made by Mr. Blake, because it is important, as bearing upon the interests of this association. Mr. Blake referred to the need we had of a reserve-fund, and he stated, in effect, that we used the whole of our income for the payment of dividends, and did not lay aside any sum of money for repairs and contingencies not contemplated in the contract with Mr. Croll, and which he apprehends will be very heavy at the expiration of the term. Now I may state that, from the report before us, the directors purpose to write off a sum of £2000 from the cost of the works, and a similar sum was written off about two years ago.

The Chairman: We have written off £4138 within a few years.

Dr. Liddell: So far, therefore, as that is concerned, we are in a very satisfactory condition. I am glad that Mr. Croll is here to-day to speak for himself. There was a great deal said at the last meeting about him, and I am sorry now to hear Mr. Blake say, if I did not misunderstand him, that the report of Mr. Hawksley proves that Mr. Croll was deserving of censure.

Mr. Blake: No; there was no censure imputed.

Dr. Liddell: Then I misunderstood you. I am quite sure there can be but one interest connected with this association—that is, that the interest of the directors, the shareholders, and the consumers are identical, and that we shall never go on well if there is a want of harmony between those three bodies. I quite agree in the propriety of our having a scientific person to test the quality and pressure of the gas we supply, but I cannot help thinking that the mistake is in the ratepayers themselves not appointing that competent person. They should be the persons to pay him, and his report should be made public. I think it is a great mistake for the company to pay the person who tests the gas. There is one circumstance stated in Mr. Hawksley's report which may perhaps account for the pressure being too small. He says that your pipes are not large enough. Now, if I am correctly informed, you cannot possibly furnish a proper pressure if the mains are too small; and it therefore becomes a question for Mr. Croll and the directors how far it is necessary that those mains should be taken up and fresh ones supplied.

Mr. Duval: That is only in one particular district.

Dr. Liddell: There is one point upon which I wish to ask the directors a question. What complaints have the consumers made to the board as to the want of a proper supply of gas? I think if the consumers would send written notice to the directors upon all occasions when they have reason to complain, it would be far better, and the faults would be more likely to be rectified.

The Chairman: We have a regular book in which all complaints are entered, and so soon as any complaint comes in it is attended to by the inspectors. We find that these complaints are usually of a local character, and arise from defects in the fittings or in connexion with the meter upon the premises of the consumer. There is nothing of a radical kind; there is a full and sufficient supply of gas. I am myself a large consumer of gas, and am obliged to have a man in continually to see to the meter or to look after the fittings, which are liable to be corroded, but the evil is soon corrected. I may say that the whole of our supply out of doors is abundant and good.

Dr. Liddell: I believe a great deal of discussion has been going on between the directors and Mr. Croll, and that it has terminated in a highly satisfactory manner. No doubt each party has had to consult the wishes of the other, but the whole matter has terminated in that way which will prove satisfactory to the shareholders. I agree, however, with Mr. Blake, that it is desirable to lay by something more than we have done; for, on looking at Mr. Hawksley's report, I cannot help thinking that there will be considerable expense at the termination of Mr. Croll's contract, an expense which will have to be provided for by the shareholders—I mean, for the mains. It would be very desirable, even at the cost of reducing the amount of the dividends, to lay by a certain amount for those repairs which will not fall upon the engineer and contractor.

Mr. Kerry: There is, I find, a small incongruity with respect to our revenue account. Last half year the balance standing to the debit of that account was £1776. 16s. 1d., and in your report at that time you proposed to carry £403. 4s. 4d. to the account of undivided profits, and if that were done, the total would stand at £2180. 0s. 5d., instead of, as in the present account, £2138. 17s. 5d.

Mr. Bagshaw (one of the auditors): Perhaps you will allow me to explain. In looking over the books, we find that there have been some very small balances, which have been opened some years, and are never likely to be called for at any time, and we have transferred them to the revenue account, which makes the difference.

Mr. Kerry: That is satisfactory as far as it goes, but I think the auditors should have stated it in some way or other.

Mr. Bagshaw: We thought it so trivial and insignificant as not to be necessary.

Mr. Kerry: If we see any difference in comparing the accounts, we are apt to think that something in the shape of cookery has been adopted. With respect to the second item on the debit side of the balance-sheet, I think it would be far better to take it out altogether; it is not likely to be paid.

The Chairman: That is a matter which will come before you presently. It is for shares which we shall call upon you to forfeit, inasmuch as the parties have not paid up the amount due upon them, and, indeed, some of the parties cannot be found. It has been formally advertised in the *Gazette*, and we shall bring a resolution forward asking you to confirm the forfeiture.

Mr. Kerry: There is another matter of a similar kind, viz., "Deposits and shares forfeited." I suppose that that is a thing which is done with, and if necessary I shall move that the amount be carried to the revenue account.

The Chairman: That can be done. Our friend, Dr. Liddell, made some remarks with reference to the dividend, and I will just take up two or three minutes to explain. I have myself, personally, sometimes been favourable to a 6 per cent. rather than an 8 per cent. dividend; but, looking at the whole matter, my brother directors have felt the force of the circumstances which lie before them—first, the increasing rental for gas, and the near approach to £42,000, which will bring into our possession another £900 a year; looking also to the report of Mr. Hawksley having been so favourable in respect to the condition of the works, I have brought my mind to the conviction that we may safely divide 8 per cent. I think before another twelvemonth is over we shall have that £900, which I should say ought to go to a reserve-fund; and if our rental goes on steadily, and I believe it will, I do hope we shall, by-and-bye, have such a reserve-fund as will be adequate to any necessity that may arise. I now ask you to adopt the report, and to declare a dividend for the half year at the rate of 8 per cent. per annum, free of income-tax, payable on and after the 30th inst.

The resolution was unanimously adopted.

On the motion of Mr. Powell, it was resolved that certain shares, the calls on which had not been paid, be declared forfeited, and that the same be disposed of by the directors by private contract.

Alderman Wire (the Lord Mayor elect): I want to know, sir, what has been done with the Deptford works. I pass there every day, and I see that they are in a great state of dilapidation, and they seem to be of no use to the company. Have the directors taken no steps to dispose of them?

The Chairman: We have advertised them, and have put a board up, and have taken every means to let such portion of the premises as we think we can possibly spare. We do not think it wise to part with the whole, because we anticipate that some day our consumption will warrant our putting up another gasholder there. We have two gasholders there now which are in use, and which appear to be in very good order, and we are taking every means to dispose of the superfluous part of the ground and wharf, but at present no person has made us an offer for them.

Alderman Wire: It appears, then, that your £20,000 was paid for nothing.

The Chairman: I beg your pardon; it is not so. We have the whole of the business of Deptford, and the commercial value of all the pipes, the gasholders, and all the property upon the works. You must remember, also, that it is freehold ground—the whole of it.

Mr. Duval: The only things we are not using there are the retorts. We find it more economical to make our gas at Rotherhithe, and fill the gasholders at Deptford from there. It would be worse than useless to make gas at Deptford, and an injury to the shareholders.

Dr. Liddell: However much our directors have been entitled in the past to the thanks of the shareholders for their zeal and attention to the interests of the company, I think there has been no time when they more deserved our thanks than the present. The inquiry which they have caused to be made into the condition of the works (and we are much obliged to Mr. Blake for bringing the subject so prominently forward on the last occasion) will be attended with a vast amount of good. I believe this association is now in a better condition than it has been for a long time; at all events, that condition is better known, and it is found to be far better than the public supposed it to be. I have no doubt, after the explanations which have been given, that the value of our shares will rise in the market—in fact, will reach their proper value. Here is a company which have been paying 8 per cent. dividends for some years past, and yet the shares are only at par. Surely the public must have formed a very erroneous opinion as to the state of the company, when such is the market value of the shares. Our directors have paid great attention to our affairs, and have had long explanations with Mr. Croll, which——

Mr. Croll: Really, Mr. Chairman, I must rise to order. I cannot allow any statements to be made unless the whole facts are brought before the meeting. There is an insinuation that I have been doing something wrong, or that I have done something that I ought not to do; and I call upon you, sir, if this matter goes on, to read the whole of the correspondence which has passed between us. I think it is evident that Dr. Liddell is in possession of certain facts relating to discussions which have taken place before the board, and if so, I think he and the other shareholders should know the whole. I have the correspondence in my pocket, and I will read it. I think it is exceedingly wrong that these remarks should be made.

The Chairman: Gentlemen, of course I can feel for Mr. Croll in reference to these matters, and I trust that Dr. Liddell, in what he has to say, will let by-gones be by-gones. The whole matter is settled, and why should we go

into anything which will tend to produce an eruption here? We have done our business, and if there is anything upon which you wish to make inquiry, I am ready to give you an answer; but as respects any matters which have taken place out of doors, I do think that is all settled. Mr. Croll has given us a letter in which he says that he has no claim against us as a company, and we ought to be entirely satisfied with that. I hope Dr. Liddell will not go into any other matter, but confine himself to the business of the meeting.

Dr. LIDDELL: I was rather desirous of complimenting both parties for doing things so well.

Mr. CROLL: All I say is, I protest against any reference being made to what has taken place in the board, or to any credit being given to the board without the whole of the facts are stated.

Dr. LIDDELL, after a few observations, moved a vote of thanks to the directors.

Mr. KERRY seconded the motion. He said: When we look round us and see the miserable mismanagement which has caused one joint-stock company after another to tumble like a house of cards before the mildest form of public scrutiny, I am sure gentlemen in this meeting will appreciate the integrity and zealous interest manifested by the directors of this company, which have brought about so satisfactory an arrangement—an arrangement which is so much in accordance with our breeches pockets.

The motion was cordially adopted.

The CHAIRMAN: In a few words I will answer for my brethren and myself. While we have health and strength we will give the most assiduous attention to the affairs of the company, so that not only from half year to half year as you meet here you may be satisfied, but that we may be able to give equal satisfaction to the consumers out of doors. We feel that that is an important matter, and we do not want any of our consumers to have just cause of complaint. Just cause, mind you. There are persons who will complain without cause—persons who do not want to pay for their gas. I know some who would like to have their gas for nothing. But we are desirous that there should be no just cause of complaint, and I feel assured if the committee of the House of Commons should meet again next year, we shall be able to answer every statement which has been made against us to the perfect satisfaction of that committee. We thank you for the confidence you have in us, and we trust we shall merit your good opinion as long as we hold our present position.

Mr. STRACHAN: As an old proprietor, though not often attending your meetings, I have listened to everything that has been said on this occasion with great satisfaction, and I most cordially concur in the observations made as to our obligations to the directors. But there have been two parties alluded to in the course of these proceedings, and I think the honour belongs to both; and therefore, while thanking the directors, I wish the shareholders would intimate their opinion that Mr. Croll likewise, on his part, has taken a most honourable course. (Cheers.) I beg to propose that in so many terms we acknowledge that the shareholders feel satisfied that Mr. Croll, on his part, has done that which is most for the advantage of the company, and has secured the entire confidence of the directors, as well as of the proprietors at large. (Hear.)

Alderman WIRE: Sir, I had risen to propose such a resolution, and I have now much pleasure in seconding it. If Mr. Croll had rendered no other service to this company than the evidence which he gave before the committee of the House of Commons, I think it would entitle him to the gratitude of every shareholder. He grappled with every difficulty, and never shunned any inquiry, putting the case in such a light as must carry conviction to that committee as to the propriety of the course which the company had pursued. Other things he has done, which you know as well as I do; but, remembering the evidence he gave before that committee, and now reading the directors' report and the report of Mr. Hawksley, I feel that we owe him a debt of gratitude, and I have much pleasure in seconding the motion.

Mr. DUVAL (a director): I was going to second the resolution, but I am glad that the worthy alderman has done so, because he is much more capable of doing it than I am. But as one of the directors, and having had greater opportunities of witnessing Mr. Croll's actions than many now present, I feel pleasure in "thirding" the vote of thanks to him. I will say that Mr. Croll has done everything that he possibly could do. He met the directors in the most cordial manner possible, and has done everything to meet their wishes and the interest of the shareholders and the consumers at large.

The motion was unanimously adopted.

Mr. CROLL: Mr. Strachan, my Lord Mayor elect, and gentlemen,—I really feel very grateful to you for the vote of confidence you have passed in me, and I beg to apologize for any heat which I have displayed. Under the circumstances, I do feel very keenly when another company is referred to, and any intimation given that I have done wrong. The proper time will come, I dare say, when my conduct will appear as clear in reference to that company as to this. I can only say that it has been my desire at all times to do everything in my power for the comfort, the profit, and the convenience of those I have had to serve. I beg to thank you sincerely for your kindness.

The proceedings then terminated.

A FAMILY SUFFOCATED BY GAS.

A very distressing occurrence took place on the morning of the 15th inst. at Pilgwenlly, a suburb of the town of Newport, Monmouthshire, by which almost an entire family lost their lives. Their death is supposed to have been caused by an escape of gas from the main pipe, which is laid about nine or ten feet from the house in which the unfortunate persons lived. The family consisted of five persons—Charles Webb (a hobbler), his wife, and three children, named respectively Mary Ann, John, and Margaret, their ages being nine, seven, and five years. They lived in one of a set of wretched houses nicknamed "Cottage Row," situated at the back of Church Street, and leading from Pill Road to the docks. The premises occupied by the deceased were all on one floor, and consisted of one room of moderate size and two smaller ones, the latter being almost air-tight at night, and having little or no proper ventilation during the day.

On Friday morning some of the neighbours noticed that the Webbs were not about at their usual time, and opening one of the windows they perceived the father, mother, and youngest child in bed, and apparently asleep. Not wishing to disturb them, or suspecting anything wrong, they waited till about twelve o'clock, when they became alarmed, and a woman named Flinn, followed by another named Dunstan, got through the window. To their horror they discovered the father apparently dead, the mother gasping for breath, as if in the last agonies of death, and upon lifting the child, found that life was extinct. Alarm was immediately given, and a surgeon was soon in attendance, who pronounced the two youngest children (who were in another room) and father to be quite dead. The mother and eldest child were at once removed to the Tredegar Arms, where every attention was at once given them. Mr. Huxtable, superintendent of police, was soon in attendance, and did all that laid in his power to assist the unfortunate sufferers. Several medical men visited them during the day, but despite all their efforts, the poor child lingered till Saturday morning, when death ensued. The mother was still alive, but slight hopes were entertained of her recovery. An inquest was commenced on Saturday, the 16th, before Mr. W. H. Brewer, deputy-coroner, at the Tredegar Arms.

The CORONER briefly addressed the jury on the distressing nature of the case they were about to investigate, after which they proceeded to view the bodies of Webb and the two children, which were lying at the house occupied by the deceased. The stench proceeding from the premises was almost intolerable.

On returning to the Tredegar Arms, the first witness sworn was—

Eliza Dunstan, who deposed: I am living with my father in Church Street, Pill. We reside in the upper portion of the house occupied by the deceased, Charles Webb. I know Webb's family well, and saw Mrs. Webb on Thursday evening. She did not complain of any disagreeable smell. Yesterday morning (Friday) I went to the house between nine and ten o'clock, and thought the family were asleep, the door being fastened. I did not disturb them. I looked through the window, and saw deceased and his wife in bed, as I thought, sleeping comfortably. About twelve o'clock I went again with some others, saying that I would have some fun with them as they were not up. The window was then a little open—about a quarter of of an inch. A woman who was with me—Ellen Flinn—pulled the window open, and called "Charley Webb!" several times. I looked in, and saw he was foaming at the mouth. Mrs. Flinn went in at the window, and I followed her. The first thing I saw was the youngest child, Margaret Webb, who was lying between the father and mother, dead. I took the body up and carried it into the dark room, where I found two other children, John Webb and Mary Ann Webb. John Webb was dead. Several people by that time had come into the room. Margaret Webb I took out into the yard. When I opened the window, I found a very disagreeable smell of gas. When I went into the place first, I thought I could not remain there, the stench was so bad. I rubbed the child well with my hands, to restore life, if possible, but it did no good. Mr. S. Homfray, who arrived soon after I was in the house, sent for Mr. James, surgeon. He looked at the child, and said it was dead. We found a great smell of gas in our house.

Mr. *Huxtable* stated that he had visited the whole of the houses in the row yesterday evening, and found a strong smell of gas in all of them.

CORONER (to witness): How long before this had you noticed a smell of gas in your house?—About six months before. It was then so bad my mother sent a notice to the gas company. There was no notice taken of the note.

CORONER: Was there a smell of gas afterwards?—Yes; every night since we could smell gas quite strong.

CORONER: If it was so bad for so long a time, did your mother complain about it again?—No; she talked about doing so, but did not.

CORONER: Did you notice the smell of gas before the drain was open?—Oh, yes; a long time before that, very strong. My mother was afraid to keep anything in one part of the house. I noticed that the gas smelt stronger in the house on Thursday night than usual.

The CORONER stated that he thought the present inquiry should be considered only a preliminary one. If the jury coincided with him he would order a *post mortem* examination, which he thought would satisfy the jury as to whether the deceased persons came to their death by suffocation.

After some desultory conversation it was determined that a *post mortem* examination should take place, the inquiry being adjourned for that purpose.

It will be as well to state that for many weeks past great excavations have been making in the locality of this melancholy occurrence, for the purpose of making a better sewerage for the town of Newport. During the progress of the works the greatest negligence has existed. Long and deep trenches have been cut in the narrow roads, which have become filled with water, the tow-path being rendered almost impassable by the heaps of mud and clay thrown up from the excavation. No lights are placed at night to warn the foot passenger of his danger, and it is not unfrequently the case that cries are heard arising from some unfortunate having accidentally in the darkness precipitated himself into one or other of the many gaps.

Our reporter states that he has just visited the scene of the calamity, and many of the residents inform him that they are in danger of going to bed in consequence of the foul state of the atmosphere in their houses. One man informed him that on Friday night, previous to retiring to bed, he looked at two of his children, who appeared to be dying, their tongues hanging from their mouths. By proper means they were fortunately restored.

The adjourned inquest upon the bodies of the unfortunate deceased was held on the following Tuesday, at the Tredegar Arms.

Mary Anne Dunstan, mother of Eliza Dunstan, who gave evidence on Saturday, deposed to the facts as previously stated. The strong smell of the gas had induced her to send to the gas company, but no notice was taken of the matter.

Joseph Snowden, one of the gas company's men, remembered taking the note from Mrs. Dunstan to the office, and believed that a man was sent to attend to the complaint. This witness was not sworn.

Mr. *Williams*, engineer to the general drainage works, deposed to the difficulty experienced in executing the drainage, owing to the interference caused by the tides. Witness thought it possible that a fracture might have taken place in the gas-pipe owing to the drainage. It was the duty of the inspector to be careful in the removal of any ground, and to see that no accident to pipes took place, and, if injured, to at once repair them. Witness considered that fractures in main pipes were not uncommon. Did not think that gas could penetrate an 18-inch wall or work through nine feet of soil, if solid. Thought it possible that the smells complained of might have come from a drain which passes under the floor of the deceased's dwelling. Believed that the gas passed into the house either through the drain or by a hole which had been discovered in the wall which divided the house from the main road.

James Ellis, inspector from the gas company's works, deposed that he had received complaints of the smell of gas from Mrs. Dunstan on Friday morning, when the dead bodies were found. Witness got men to search for the escape, and on opening the ground they found a fracture in the main directly facing the residence of the deceased persons, which separated the pipe about 1¼ inch. He could not account for the breakage, and did not believe it had been broken many hours. During the progress of the drainage-works he had called Mr. Bryan, the engineer's attention to many escapes of gas in different parts of the town. There were two in Dolphin Street. Could not exactly account for the breakage, whether it was from the weight of the earth or from carts going over it.

By the JURY: Considered the men who were making the drains required a great deal of looking after.

Mr. *James*, surgeon, sworn, deposed to being sent for on Friday morning, between twelve and one o'clock, to attend Webb and his family. Found Webb in the yard dead, and two of the children in the house also dead. Mrs. Webb and her other child were living, but in an insensible state. Immediately applied proper remedies to restore them to animation, which succeeded in about an hour and a half. Had them brought as soon as possible to the Tredegar Arms, where the child died on Saturday morning at three o'clock. The woman still lived. When witness went into the house there was a

strong smell of gas, so much so that he could hardly stay there. The door was open when witness got there. The houses have been known as unhealthy for some time. Disease of the lungs and fever predominate generally. Did think there was not a worse place in the town, and it was not fit for human beings to reside in. On Saturday witness made a *post mortem* examination of the body of Charles Webb. There were no external marks of violence, and the face and neck appeared much congested with blood. The vessels and substances of the brain were also much gorged with blood. The cause of death, witness believed, was suffocation by carburetted hydrogen gas.

Henry Edmonds, blacksmith, who lived a short distance from deceased's hovel, saw the fracture in the pipe, and believed it to have been broken two or three days. There had been a strong smell of gas in the neighbourhood for the last fortnight.

Mr. *James*, surgeon, having, in answer to questions from the coroner as to the state of health of the woman Webb, replied satisfactorily, the inquest was adjourned until the 2nd of November, for the purpose of receiving her evidence, should she have recovered sufficiently to admit of her being sworn.

The unfortunate man, Webb, and his three children were buried on Sunday afternoon at the Newport Cemetery. A large number of persons followed in procession, and it is estimated that not less than 1000 were assembled within the burial-ground. The streets through which the funeral passed were lined with spectators.

Sheffield United Gas Company.—At the Ordinary Half-Yearly Meeting of this Company, held on the 21st instant, a dividend was declared at the rate of 10 per cent. per annum on the Class A stock, and 8 per cent. per annum on the remainder of the paid-up capital of the company, leaving a small surplus. The total paid-up capital is now £224,753, and the mortgage debt is £59,450.

Gas Stealing at Bradford.—On Wednesday, at the Bradford Borough Court, William Jowett, of Legram's Lane, was charged with having connected a pipe with a gas-meter in his house, and burnt gas without having first made a contract or agreement with the Bradford Gaslight Company, whereby he had made himself liable to a penalty not exceeding £10. Mr. Lees, solicitor, appeared in support of the charge, and called William Milner, meter inspector, in the employ of the company, who proved that on the 8th inst. when he visited the house, the defendant acknowledged he had connected the pipe with the meter as alleged. The witness also said that the meter indicated that 10,000 feet of gas, the price of which was £2, had been consumed since Mr. Joshua Horsfall, the previous tenant, left the house, and that, owing to the clumsy manner in which the pipe and meter had been joined, the gas was escaping. The defendant, who did not appear in court to answer the charge, was convicted in the mitigated penalty of £5, and 10s. expenses; or, in default of payment, to be imprisoned one month.

Rise in the Price of Gas.—At a Special Meeting of the Common Council of Philadelphia, held on the 5th instant, an ordinance was passed repealing such portions of an existing ordinance as limited the price of gas to 2 dollars 25 cents (9s. 4½d. sterling) per 1000 feet, and allowing the trustees of the corporation gas-works to raise the price to 2 dollars 50 cents (10s. 5d. sterling) per 1000 feet.

Havannah.—The last West Indian mail brings advice of the terrific explosion of a powder magazine, by which the gas-works were so seriously damaged as to render it impossible for them to continue the supply of gas to the city. Nearly one hundred sugar-houses were destroyed at the same time.

A Retort-House Scrap.—In the ordinary circumstances of daily life the amount of fluid which is given off from the skin (and lungs) during the 24 hours varies from 1 2-3rds lbs. to 5 lbs.; under extraordinary circumstances, the amount will of course rise enormously. Dr. Southwood Smith found that the workmen in the gas-works employed in making up the fires, and other occupations which subjected them to great heat, lost on an average 3 lbs. 6 oz. in forty-five minutes; and when working for seventy minutes in an unusually hot place, their loss was 5 lbs. 2 oz. and 4 lbs. 14 oz.—*Blackwood.*

German Gas-Works.—Gas-works have just been completed for the town of Naumburg, near Leipsic, for the magistrates of that town, and were opened last week with great rejoicings. The streets were brilliantly illuminated, the day was kept as a general holiday, and the evening closed with a dinner in the town hall to celebrate the event, to which the magistrates of the surrounding towns were invited. The ironwork was erected by Messrs. R. Laidlaw and Sons, of Milton Foundry, Glasgow, and the brickwork and masonry by local persons, the whole being carried out from the designs and under the superintendence of Mr. Henry Palfrey Stephenson, of Pall Mall, London.

Ballarat.—The leading inland town in the colony of Victoria was lighted with gas on Saturday, July 17th last. From the moment the plans were decided on the work had proceeded with the greatest rapidity, and only five months had elapsed from the commencement until gas was in the mains and ready for the consumers. At present there are fifteen retorts, set three in an oven; the upper retort in each oven being used solely for the distillation of Boghead cannel. The gasholder is capable of storing 25,000 cubic feet. Since the gas was turned on, there has been what is termed in colonial parlance "a regular rush" for it, although it is at the fabulous price of 40s. per 1000 feet. Even at this high figure it is beyond all comparison the cheapest medium for lighting. The gas is very rich, and gives as yet universal satisfaction. It is expected that a large extension of the works will be rendered necessary to meet the demands of the next winter. Considerable credit is due to the gentlemen who with confidence and energy have pushed the work so rapidly forward. All the materials, including castings of comparative magnitude, had to be made at and forwarded from Melbourne. In the first place, these were conveyed by sea to Geelong, and from thence, a distance of 60 miles, to Ballarat, on a road which is often impassable. The means of conveyance were principally bullock drays, which generally travel at the immense speed of twelve miles per day; and even this progress, slow as it is, is surprising when we consider the track which these rude but effective carts have to travel in. Cartage is here a most expensive affair. The lowest rate at which goods can be brought from Geelong is £5 per ton. In the earlier days of Ballarat the price ranged from £70 to £100 per ton. An experimental work is about to be erected for the purpose of ascertaining what amount of gas can be obtained from the vegetable productions of the neighbourhood. The Ballarat works have a very substantial home-like appearance, the chimney being quite an ornament on the diggings, where, generally speaking, everything is of a temporary character. The engineer is Mr. T. E. Jones, late of Nottingham.

Cooper's Gas Regulator.—At a late meeting of the Franklin Institute, Philadelphia, Mr. John H. Cooper exhibited his improved regulator for controlling the pressure of gas at the burners. This instrument consists essentially of a small conical valve, capable of opening and closing the aperture which admits the gas from the meter to the pipe supplying the burners, and an inverted cup or gasometer having a cylindrical rim dipping in mercury. This cup is guided in its vertical movements by an arm hinged loosely to the casing, which contains all the parts, and to the cup, by which arrangement the latter is wholly unencumbered by friction. The cup is loaded with weights to a certain permanent pressure, which experiment determines to be the most economical and advantageous for consumption of gas, and when so adjusted the instrument requires no further attention from the consumer. *Extreme sensitiveness* is secured in this instrument by hinging and supporting the working parts on fine axes wholly removed from the corrosive action of the gas; for this reason the tendency to become inactive is rendered almost impossible. When the street pressure of gas is low, owing to a deficiency in the mains, this instrument offers no obstruction to the free flow of gas; and when the pressure again increases, it comes into action, checking any increased flow of gas to the burners beyond that required for economic consumption.

Experimental Road-Making.—An experiment on a large scale is being made in Regent Street, with the view of testing the invention of Mr. Carey, of Bankside. The entire bed of the old macadam is taken up, and the material twice screened—the first through 1¼-inch sieves, which separates the larger lumps of the broken Guernsey granite, and this is reserved for use again in the surface. The second screening through ½-inch sieves brings out a stone of smaller size. The rest (dirt and stone ground to powder, about half of the whole mass) is carted away. A substratum, composed of broken Kentish rag with small granite (the second screenings of the old material), and an ingredient formed of *coal tar and ashes*, the whole moistened with water and well blended, is laid down and carefully formed to the intended shape of the road, and brought to a smooth surface by rolling. This forms a compact, tough, and elastic layer, impervious to water, and constitutes what may be appropriately termed the cushion—the primary feature of originality in Mr. Carey's plan. On this lies the superstratum, which latter consists of

Price Current.

CASTINGS, per Ton.

Average Weight of Cast-Iron Gas-Pipes, per Yard.

1¼ in.	2 in.	2½ in.	3 in.	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.
16	21	28	33	51	70	89	107	126	149	177	208 lbs.

Retail Prices are 5 to 10 per cent. higher.	London.	Glasgow.	Newcastle.	Wales.	Yorkshire, Derbyshire, and Staffordsh.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Pig Iron, No. 1	4 10 0	2 14 0	3 0 0	4 0 0	4 5 0
1½ and 2 inches Socket-Pipes	7 15 0	7 0 0	7 5 0	7 10 0	7 5 0
2½ and 3 ,, ,,	7 5 0	6 15 0	7 0 0	7 5 0	7 0 0
4 and 5 ,, ,,	7 5 0	6 10 0	6 15 0	7 0 0	6 15 0
6 in. and upwards ,,	7 0 0	6 5 0	6 5 0	6 15 0	6 5 0
Retorts, 1st fusion, hot blast	6 15 0	...	6 15 0	7 0 0	6 15 0
,, 2nd ,, cold ,,	7 15 0	...	7 0 0	7 5 0	7 0 0
Tank Plates, ⅜ thick and above	7 5 0	6 10 0	6 15 0	7 0 0	6 15 0

WROUGHT-IRON TUBING,

Subject to 40 per cent. Discount.

	2 in.	1¼ in.	1¼ in.	1 in.	¾ in.	½ in.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Patent Welded Tubes, from 2 to 12 ft., perft.	1 8	1 0	0 10	0 7	0 5	0 4½
,, ,, ,, 6 in. to 18 in., each	3 0	2 0	1 9	1 3	1 0	0 9
Connecting-Pieces, or Long Screws	3 6	2 3	2 0	1 6	1 2	0 11
Bends, Springs, and Elbows—wrought iron	3 9	2 3	1 9	1 0	0 10	0 8
Tees, wrought or cast	4 0	2 6	2 0	1 6	1 1	0 10
Crosses, wrought or cast	4 6	3 0	2 6	2 0	1 6	1 2
Iron Cocks	17 6	9 6	7 6	4 6	3 3	2 6
,, with brass plug	28 0	16 0	13 0	7 0	5 6	4 6
Diminishing Sockets, Caps, Plugs, and Plain Sockets [Nipples	1 3	0 9	0 8	0 6	0 5	0 4
Syphons, 2 quart	1 0	0 8	0 7	0 5	0 4	0 3
	15 0	14 0	13 6	13 0	12 0	—

COALS, per Ton.

Newcastle.—Unscreened.	6s. 3d.	*Scotch Cannel.*	32s. 0d.
Whitwell Primrose		Boghead, at Leith	
Medomsley, Eighton Moor, and Burnhope	6 6	Kirkness, best	23 0
Pelaw	6 9	Capeldrae, 1st quality	20 0
New Pelton, Peareth, South Pelaw, Washington Hutton, and South Peareth	7 0	,, 2nd ,,	12 6
Pelton	7 9	Lesmahago, at Glasgow	25 0
Ramsay's Newcastle Cannel	16 0	,, ,, Leith	27 6
		Arniston	22 0
		Wemyss	20 0
		Knightswood	18 0
		Pirnie	15 0

SUNDRIES.

Best Newcastle Fire-bricks	per 1000	60s. 0d.	
,, ,, clay	per ton	12 0	
Cliff's Fire-bricks, at Wortley	per 1000	57 6	
Ingham's Fire-bricks, at Wortley	,,	55 0	
Tough Cake Copper	per ton	£98 0s.	Foreign Spelter per ton £22 15s.
English Pig Lead	,,	21 10	English Block Tin ,, 121 0
Welch Bar Iron, in London	,,	7 0	Banca ,, 123 0
Tarred Rope Yarn	per cwt.	26s. 0d.	

FREIGHTS.

Coastwise—Newcastle.—Per Ton.		*Foreign.—Per Keel.*	
Chatham & Rochester	5s. 3d.	Boulogne & Calais	£ 7 0s.
Cork	8 0	Barcelona	22 0
Dover	5 9	Bordeaux	12 0
Dublin	9 0	Cadiz	15 0
Exeter Quay	7 6	Copenhagen	7 10
Folkestone	5 9	Dieppe	8 0
Hastings	—	Genoa	20 10
London	5 6	Hamburg	8 0
Lowestoft & Yarmouth	4 3	Havre	8 10
Lynn	4 9	Leghorn	19 0
Portsmouth	6 6	Lisbon	14 0
Plymouth	7 0	Rotterdam	7 10
Whitstable	—	Stettin	9 0
Weymouth	—	Trieste & Venice	£21 to 23 0

a 4-inch layer of the cleaned Guernsey granite. The top is sprinkled over with a small shingle of the same material—wedges, as it were, for binding the surface-stones together—and over that another sprinkling of a fine loamy gravel; these together partially filling up the interstices of the lumps of stone. Then, by the application of a heavy roller, a smooth surface is obtained previous to the traffic going on. The roller employed is of 6 tons weight, constructed in six rings, 5 feet in diameter, with a width of 10 inches on the rim, each ring having an independent bearing. The contract for this work is 2s. 6d. per square yard. Connected with this experiment is an original feature in the introduction of an iron gutter or channel. This is formed of hollow blocks of cast iron, 16 inches long and 4 inches deep, and bolted into each other. They are set in cement. The width is 16 inches, the surface somewhat concaved and corrugated, so as to prevent slipperiness, and at the same time afford the requisite facility for cleansing. The cost of this gutter is 4s. per foot.

FATAL GAS EXPLOSION AT COLONEL GREVILLE'S.—Mr. Bedford, coroner for Westminster, held an inquiry on Monday, the 18th instant, at St. George's Hospital, into the cause of the death of Elizabeth Blampin, who was in the service of Colonel Fulke Greville, M.P., at No. 2, Albert Gate. It appeared from the evidence adduced that on the night of the 13th of September last there was an explosion of gas in the lower part of Colonel Greville's house, on which occasion three servants, including the deceased, received severe injuries. The explosion is supposed to have taken place in consequence of an escape of gas from a large burner of thirteen jets, which had only been completed on the afternoon of the explosion, in a large strong room recently erected, which it was desired to dry. When the inquiry was opened, it was stated that the gas-fitter had instructed the deceased as to the manner of turning on the lights and turning them off, and, under the circumstances, Mr. Bedford thought it desirable that the gas-fitter should have an opportunity of giving some explanations. Mr. G. C. Lewis, of No. 1, Lowndes Terrace, Knightsbridge, ironmonger, said that, about ten minutes before eleven o'clock on the night of the 13th ult., a person came to him with a message that he was wanted to turn off the gas at Colonel Greville's, the gas-fitter having taken away the key. He went there with a screw-spanner, and turned off the mains. He inquired where the meters were, but the deceased was so excited that she could not tell him, but wanted to take hold of his arm. As she was bleeding very much he would not allow her to do so. She then dragged him by his coat to a cupboard, but the meter was not there, and he found only the keys of the main-cock, which he turned off. After deceased was taken to St. George's Hospital, he went back to the premises to ascertain where the escape of gas was. There was ample evidence to show that the explosion took place in the strong room. The iron door must have been open, or it would have been blown out, and the wooden door could not have been fastened, as it was only charred and the paint burnt off. The servants had been absent three hours, and on their return they must have entered by the area and obtained a light, as he found lucifer matches lying at the entrance, and a small gauze lamp at the foot of the stairs. Frederick Paul, of Churton Street, gas-fitter, said he was employed to fit up the burner, and when he had completed it he tried it in the presence of Colonel Greville and his butler. It was found quite perfect. His foreman had advised that a man should be left to turn off the gas, but Colonel Greville thought that if the deceased was instructed what to do that would be sufficient. The deceased was warned particularly not to shut either of the doors. The coroner said it was a very lamentable case, and the evidence was very unsatisfactory. He thought the public could not be too well informed of the dangerous character of such works. The jury returned a verdict of "Accidental death," and expressed their belief that there had not been sufficient caution on the part of the gas-fitter. The coroner said the gas-fitter ought to have represented to Colonel Greville the impropriety of leaving such a duty to a female servant.

Advertisements.

By Her Majesty's Royal Letters Patent.

JOSEPH BOULTON, Patent Dry GAS-METER MANUFACTURER, and also Maker of his Improved WATER METERS.

No. 28, BAGNIGGE-WELLS ROAD, CLERKENWELL, adjoining the Police Office.—Late of No. 1, Coppice-row, LONDON.

Experimental and Station Meters of any size made to order on the shortest notice.—Governors, Pressure Registers, Gas-cooking Stoves, and every description of Gas Apparatus.

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JOHN ROGERSON and CO., NEWCASTLE-ON-TYNE & MIDDLESBRO'-ON-TEES.

Wrought and Cast Iron Pipes, Cast-Iron Retorts, and all kinds of Foundry Work necessary for Gas-Works. Fire-Bricks and Clay Retorts. Gas Coals of every description. Pig, Bar, and Plate Iron.

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CANNEL AND COAL FOR GAS PURPOSES.—Fifteen years' connexion with one of the largest Gas Concerns in England, enables us from practical experience to certify that the CANNEL and COAL we offer are those best suited for Gas purposes.

On application, we shall have much pleasure in forwarding our Tabulated Statements of Analyses, with Prices and Terms; also References as to respectability.

All Contract Orders have our careful and best attention.

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Manufacturer of

IRON TANKS for Gasholders, Railway Stations, &c.

GASHOLDERS.—Extensive premises at Gorton, solely for the manufacture of Gasholders, and other heavy Wrought-Iron Structures.

GAS APPARATUS.—W. M. has an extensive assortment of patterns for Purifiers from 4 feet to 15 feet square, also round ones from 4 feet to 10 feet diameter; Scrubbers, Condensers, Washers, Columns, Girders, and Tripod Patterns, suitable for Gasholders, from 10 feet to 150 feet diameter, either Single-lift or Telescope. Contractor for Gas Works of any Magnitude. Designs, Specifications, and Estimates furnished.

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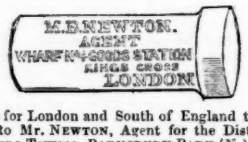

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N.B.—A few Retorts of each size, and a large stock of Bricks and Lumps, always on hand at the above Wharf.

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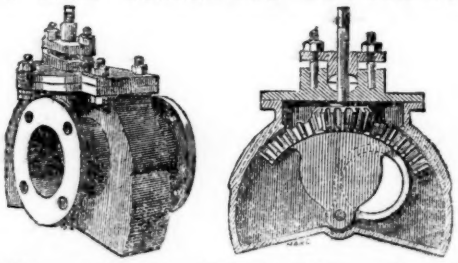

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These Meters are as simple and durable as the Gas-Meter, and as correct as that instrument in the registration of the fluids passing through them.

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Estimates for Setting, or Bricklayers sent when required.

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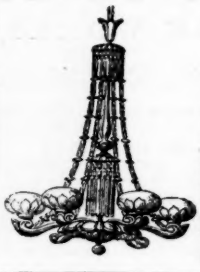

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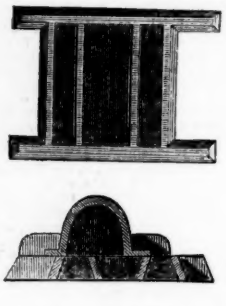
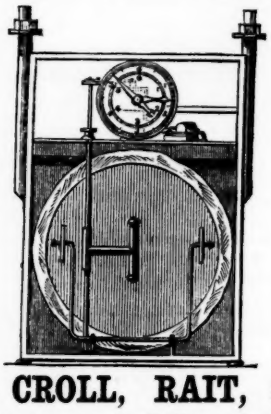
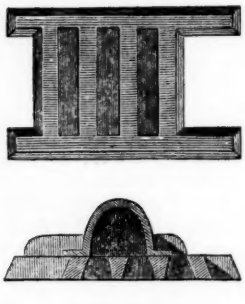




OLD VALVE.



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